ENGINEERING NEWS-RECORD

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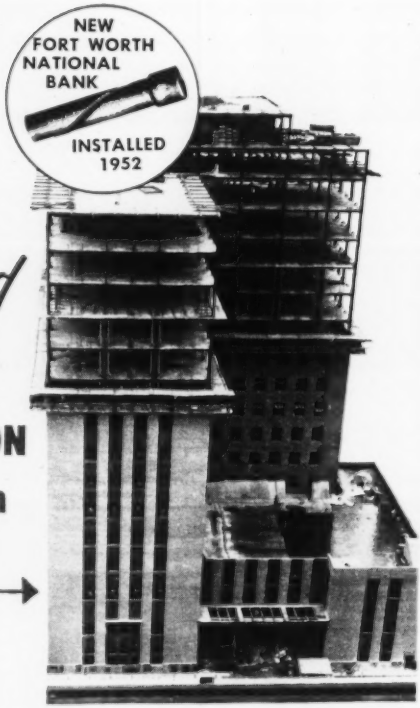
BYERS WROUGHT IRON PIPE selection HERE



Using experience as a guide in selecting pipe for corrosive services is a proved, widely applied practice among many of the nation's leading engineers.

A recent example of this practice is provided by the new Fort Worth Bank Building, Fort Worth, Texas. The use of Byers Wrought Iron pipe in this new building for hot and cold water lines, and downspouts is amply supported by the 31-year maintenance-free service record established by the material in identical services in the old Fort Worth Bank Building. In addition to these services, Byers Wrought Iron pipe was used to safeguard steam returns and condenser and chilled water lines for the refrigeration system, bringing the total tonnage installed in the new building up to 152 tons. Preston M. Geren, Fort Worth, was the architect; Shreve, Lamb & Harmon & Associates, New York, N. Y., Consulting Architects; Yandell, Cowan, and Love, Fort Worth, were the engineers.

This Fort Worth Bank "Old-New" story supplies continuing proof that Byers Wrought Iron pipe is a *time-tested* material, and that its service records from the past provide a reliable guide for material selection today.

Our bulletin, WROUGHT IRON FOR PIPING SYSTEMS, discusses some of the corrosive conditions found in various services, and illustrates a few of the many places where genuine wrought iron has been successfully applied. Write for your copy.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. Export Division: New York, N. Y.

Why Genuine Wrought Iron Lasts

This notch-fracture test specimen illustrates the unique fibrous structure of genuine wrought iron—which is responsible for the high corrosion resistance of the material. Tiny threads of glass-like silicate slag, distributed through the body of high-purity iron, halt and disperse corrosive attack, and discourage pitting and penetration. They also anchor the initial protective scale, which shields the underlying metal.

BYERS

CORROSION COSTS YOU MORE THAN WROUGHT IRON

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TUBULAR AND HOT ROLLED PRODUCTS

ELECTRIC FURNACE QUALITY ALLOY AND STAINLESS STEEL PRODUCTS

5 YEARS' SERVICE

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ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 148 JUNE 5, 1952 No. 23

WALDO G. BOWMAN
Editor

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Number of copies of this issue printed, 53,251

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Domestic News Bureaus—Atlanta, Chicago, Cleveland, Detroit, Houston, Los Angeles, San Francisco, Washington. *Correspondents* in 71 cities in the United States, Canada and Mexico.

Foreign News Bureaus—London, Frankfurt, Paris, Moscow, Tokyo, Bombay, Melbourne, Rio de Janeiro, Mexico City. *Correspondents*—Athens, Rome, Caracas, Buenos Aires, Santiago, Shanghai, Zurich, Johannesburg and 40 other cities.

ROBERT F. BOGER
Publisher

June 5, 1952 ENGINEERING NEWS-RECORD Vol. 148—No. 23

Member ABC and ABP

Published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948), Founder. **Publication Office, 99-129 North Broadway, Albany 1, N. Y.**

Executive, Editorial and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y. Curtis W. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President, Publications Division; Ralph B. Smith, Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions: Address correspondence to Engineering News-Record—Subscription Service, 99-129 North Broadway, Albany 1, N. Y., or 330 W. 42nd St., New York 36, N. Y. Allow ten days for change of address.

Subscriptions are solicited only from persons with an identifiable commercial or professional interest in construction and building. Position and company connection must be indicated on subscription orders.

Single copies 35¢. Subscription rates—United States and possessions, $6.00 a year; $9.00 for two years; $12.00 for three years. Canada, $8.00 a year; $12.00 for two years; $16.00 for three years. Other Western Hemisphere countries, $15.00 a year; $25.00 for two years; $30.00 for three years. All other countries, $20.00 a year; $30.00 for two years; $40.00 for three years. Entered as second class matter October 29, 1946, at the Post Office at Albany, N. Y., under Act of Mar. 3, 1879. Printed in U. S. A.

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full efficiency in each classification

It's another

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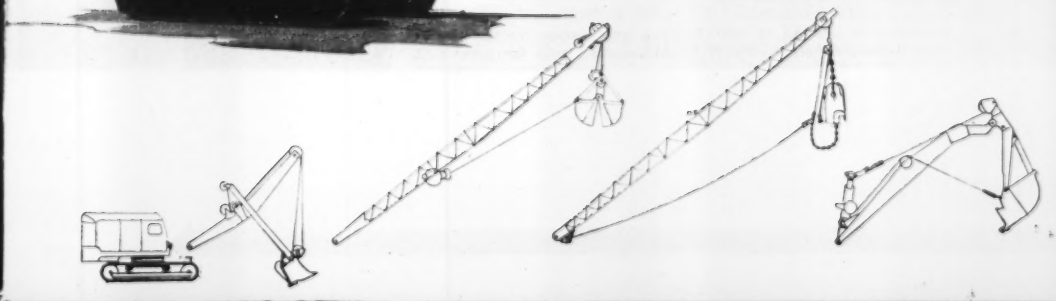
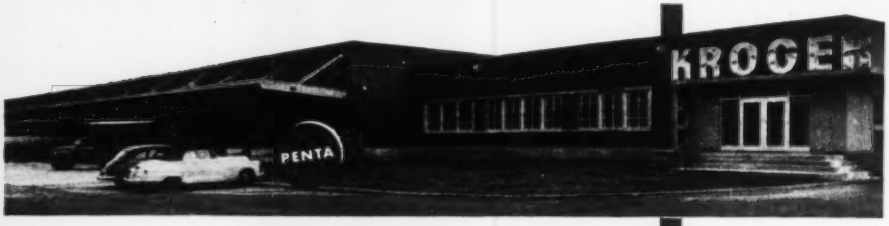
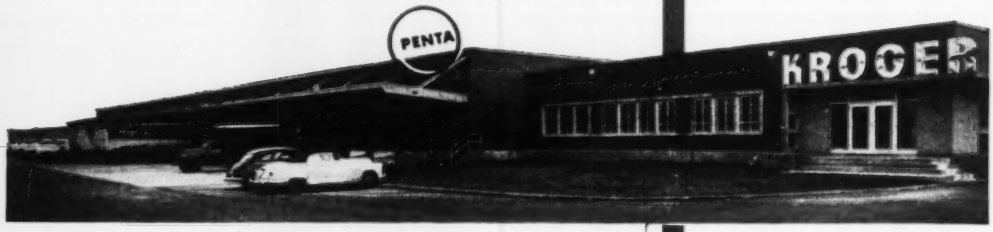
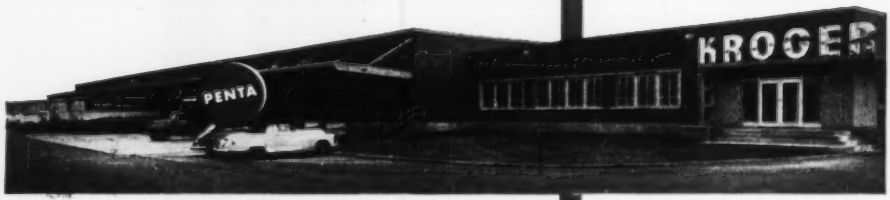




Penta preserves wood



in new Kroger building



Much of the wood used in the new Kroger office and warehouse in Nashville, Tennessee, is protected by Monsanto Penta preservative. Penta is used in all timbers of the loading dock bumper, in lumber around the perimeter of the roof and in the 8 x 8 buck timbers of the cold room.

Monsanto Penta protects lumber against attacks by termites and other wood-boring insects. It prevents decay caused by fungi. Monsanto Penta is a stable wood preservative. It does not leach. It does not wash away in rain or ground water. Properly formulated penta leaves wood clean, so it can be painted or finished by other methods.

For information on the use of Monsanto Penta for preserving wood . . . for names of custom treaters . . . for a list of dealers who supply ready-treated wood . . . contact the nearest Monsanto Sales Office or write MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1700 South Second Street, St. Louis 4, Mo.

PENTA

MONSANTO
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Serving Industry . . . Which Serves Mankind

Here's why

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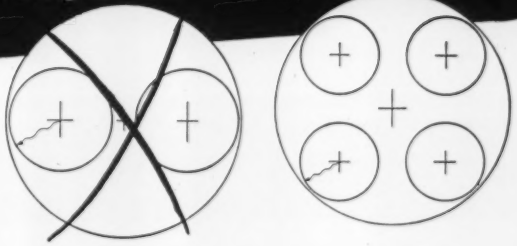
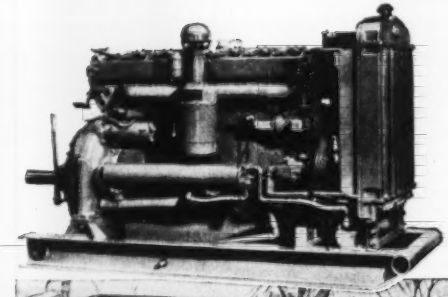
put more power into your job

with longer life and less maintenance





Murphy Diesel rated at100 H.P., continuous, powering a Diamond portable primary rock plant.

MURPHY DIESEL

THE power a diesel engine develops is dependent to a great degree on the breathing capacity of the valves. Breathing capacity of the valves in turn is determined by the circumference of the valves and their lift. Thus, when we compare Murphy Diesel's 4 valve design with the conventional 2 valve design of equal total valve area, simple arithmetic shows that total circumference of the 4 valve arrangement is 41.4% greater. With equal lift, the breathing capacity is also 41.4% greater.

At the same time, Murphy design provides 41.4% more metal-to-metal contact between the circumference of the valve and the seat for dissipation of valve heat. This, coupled with the smaller valve radius in 4 valve design (which means the heat has a shorter distance to travel to escape), explains why Murphy valves run cooler and rarely, if ever, have to be ground.

Four valves per cylinder is just one of the many reasons for Murphy's high standards of performance and economy. Others are given in the booklet "10 Questions to Ask a Diesel Engine Salesman". Get a copy from your Murphy Diesel Dealer or write direct.

Heavy duty power

for construction

Murphy Diesel Engines and Power Units for construction, 90 to 226 H.P. Generator Sets, 60 to 140 K.W.

226

MURPHY DIESEL COMPANY

5311 W. Burnham St. Milwaukee 14, Wisconsin

Sales, Parts, Service in Principal Cities

Summer dirtmover and WINTER snow plow

On typical road job, regrading County Trunk "F" near Weyerhauser, Tournapull spread 66 pay yds. of hardpan sandy loam and gravel hourly on 500' one-way haul. Loads with RD-7 pusher averaged 6 yds. During summer, unit also placed sand lift, removed blacktop, spread surfacing on other Rusk County roads besides handling scores of widely-scattered odd jobs for individuals and townships.

gives year-round service

Rusk County Highway Dept., Ladysmith, Wisconsin, keeps this 7-yd. D Tournapull busy the year-round. During the dirtmoving season, it works on road jobs both as a self-loading tool and with a small pusher. In winter, equipped with a LeTourneau 9' V-Plow (illustrated) it speeds county-wide snow removal. Here's a report from Highway Commissioner Harold Iverson on its cold weather operation:

"We use our D Tournapull mostly for plowing out farm driveways," Iverson says. "Clearing and widening the average 200 to 250' driveway takes less than 3 minutes with this rig as compared to 10 to 15 minutes with a 10-ton, all-wheel-drive truck and longer with a motor patrol. I'd say we clear at least 2 to 3 times as many driveways in a day with the 'D' as we do with a truck.

For example, one day right after a heavy storm, the 'D' plowed out 56 driveways over 30 miles of country roads. A truck would have cleared 15, maybe 20.

"The biggest advantage of the D Tournapull is its maneuverability. You can turn it around within its own length. You can't get stuck! With a truck you have to line up your wheels very carefully before starting to plow a driveway so you don't fall into a culvert . . . with a Tournapull, you just turn on the run and drive ahead. Tournapull operator also has a clear view of the plow blade which speeds his work considerably."

If you want a scraper which you can also use profitably for snow removal work, better look into this D Tournapull. It is the only scraper unit on the market which is both maneuverable enough (90° turns within 12' 9" radius) and fast enough (28 m.p.h.) to effectively plow snow. Ask your nearest LeTourneau Distributor for all the facts.

TIME STUDY

Clearing Driveways

Snow crusted and drifted 6" to 2' deep. Ground soft and wet. Temperature slightly above freezing.

Length of Driveway	Time to Plow*
250'	1 min. 35 sec.
200'	2 min. 5 sec.
200'	1 min. 30 sec.

*Includes turn and stop at entrance, pass in, turn around at barn, pass out to widen.

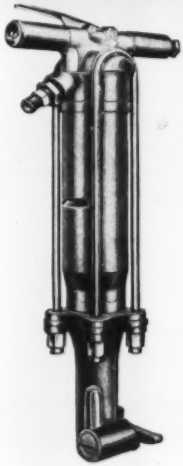
Tournapull—Trademark Reg. U. S. Pat. Off. 5-23-H-b

LeTOURNEAU LET EQUIPMENT

R. G. LeTOURNEAU, INC., Peoria, Illinois

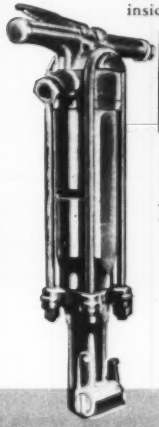
HIGH-SPEED, RUBBER-TIRED EXCAVATING • HAULING • LIFTING EQUIPMENT

K ...is for the Knockout power in JOY PAVING BREAKERS



K-89... New Super heavyweight

There's real knockout power in this 90 lb. super breaker. The K-89 is designed to speed up demolition of those extra tough-and-heavy reinforced concrete sections, etc. Like all Joy SILVER STREAK Paving Breakers, the K-89 is cadmium-plated inside and out, which prevents rusting, eliminates scoring and aids lubrication.



K-81... heavyweight

Handles tough demolition jobs economically and efficiently—breaks more concrete because it strikes more and heavier blows, and because it's easier to hold. Outstanding features of the K-81 include the exclusive Joy "Dual Valve," flat-sided cylinder for easy holding against operator's leg, replaceable chuck bushings, "U" type side rods and rugged cam-type retainer.

K-61...medium weight

Specially suited for thin-section concrete and other light demolition jobs—hard-hitting and easy-handling like the K-81, but lighter in weight. Many of the parts, such as the chuck housing, chuck bushing and throttle, will fit both the K-61 and K-81—a considerable saving in repair parts stock.

The THRIFTY JOY DUAL-VALVE Makes Air Do More Work!

Get the facts about Joy paving breakers—also Joy compressors, rock drills, wagon drills, core drills, hoists, spaders, trench diggers, etc. See your nearest Joy office or distributor.

K-31 ...lightweight

Only 30 lbs.—a powerful, easy-handling little breaker that's ideal for light demolition and all work where the operator must support the entire weight of the tool, or where footing is not solid, as on scaffolds.

Write for Bulletins, or

Consult a Joy Engineer

OVER 100 YEARS OF ENGINEERING LEADERSHIP

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Pneumatractor

DEMONSTRATION WILL PROVE

IT CAN

PUSH front end loader with bucket (illustrated), or angle dozer blade, rotary sweeper, snow plows, etc.

PULL anything a wheel tractor will, with either front or rear winch.

POWER any hydraulically, mechanically and pneumatically operated equipment such as back hoe (illustrated), post hole digger, scaffold boom, etc.

PROVIDE AIR for any pneumatic tools that can be operated from a 105 C.F.M. AIR COMPRESSOR.

A phone call (West Chester 2-500) or letter to Schramm Inc., West Chester, Pa., will arrange a demonstration or provide animated colored sound film.

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FORD POWER helps digger make Bigger Profits!

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6 GREAT HEAVY-DUTY ENGINES NOW AVAILABLE IN THE POPULAR INDUSTRIAL POWER RANGES

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What's more, wherever your equipment is put to work, there's always a Ford Dealer nearby who has replacement parts and, if necessary, trained mechanics for quick service. In fact, the fast-growing popularity of Ford Industrial Power is based on three important factors: 1. RIGHT POWER, 2. RIGHT FEATURES, 3. RIGHT SERVICE. Our experienced Sales Engineers are ready to cooperate in any development problems involving the best use of Ford Industrial Power.

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"MULTA-TORQUE" Converter

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SWITCH TO THE BEST BIT TYPE FOR THE JOB, RIGHT ON THE JOB!

Both Timken® rock bit types fit the same drill steel!

AS the ground changes on the job, you can change to the most economical bit right *on* the job — if you're using Timken® bits. They're interchangeable. Timken carbide insert and multi-use bits both fit the same threaded drill steel.

When drilling in ordinary ground use Timken multi-use bits. With correct and controlled reconditioning, they give you the lowest cost per foot of hole when full increments of steel can be drilled.

When you hit hard, abrasive ground, quickly switch to Timken carbide insert bits for greatest economy. They're your best bet for maximum speed, constant-gauge holes, small diameter blast holes and very deep holes.

By teaming up Timken carbide insert and multi-use bits, you put the best answer to every drilling requirement right at your drillers' finger tips. Both bit types are interchangeable in each thread series. And remember that both have these three important advantages: 1) made from electric furnace Timken fine alloy steel, 2) threads are not subject to drilling impact because of the special shoulder union developed by the Timken Company, 3) quickly and easily removable.

Call upon the 20 years' experience of our Rock Bit Engineering Service for help in selecting the best bits for *your* job. Write The Timken Roller Bearing Company, Rock Bit Div., Canton 6, O. Cable address: "TIMROSCO".

Timken threaded multi-use rock bit

Timken threaded carbide insert rock bit

TIMKEN

your best bet for the best bit . . . for every job

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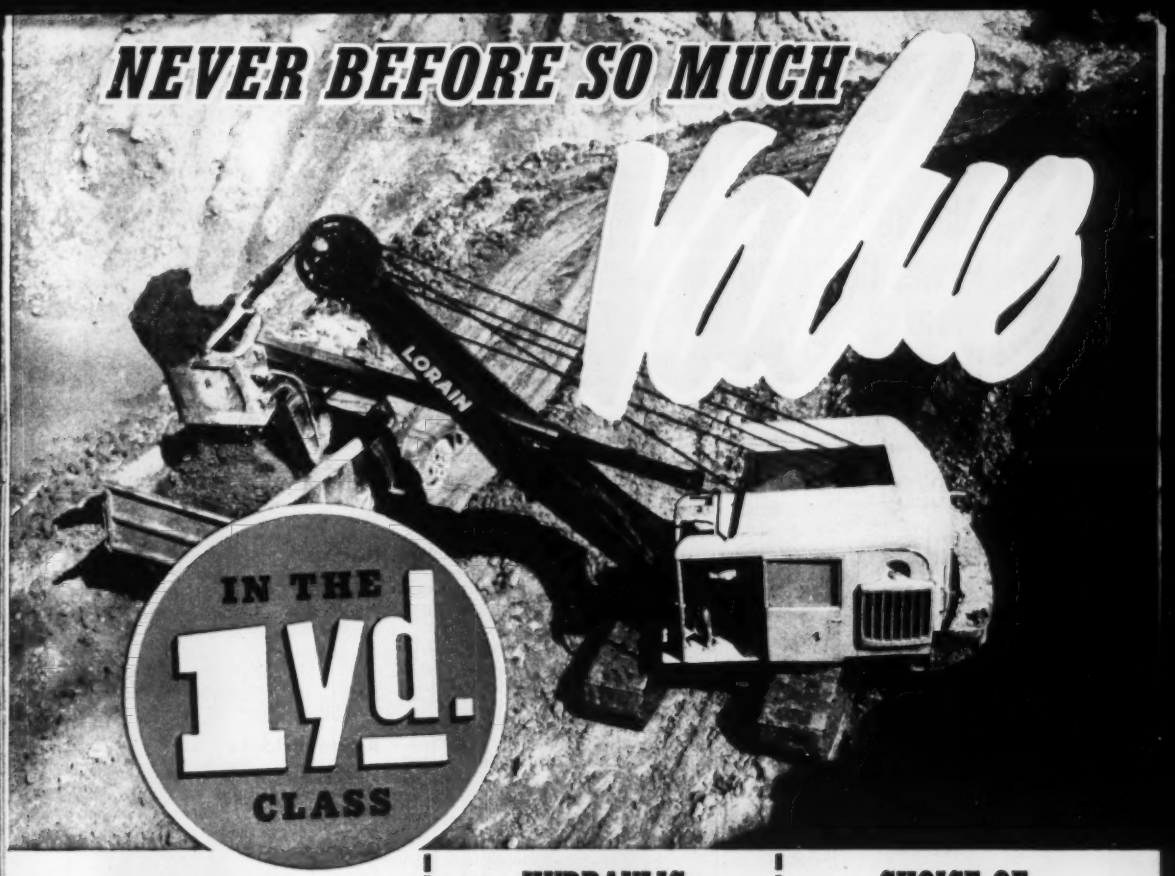
Value



AIR CONTROLS

Air does the work on the "50". Air assist controls hoist, crowd, retract operations—full air control for crawler steering and tread lock operation.

HYDRAULIC COUPLING

No shocks, no engine stall with Lorain Hydraulic (fluid) Coupling. It's the only 1-yd. machine with Hydraulic Coupling as standard.

CHOICE OF 4 CRAWLERS

Standard, extra-long, extra-wide, wide and long . . . you can fit the "50" with a crawler to match exactly any ground, or working condition.

CENTER DRIVE CONSTRUCTION

Here's direct power—where you want it. Gang-up full engine power in any one operation, or spread power over simultaneous, synchronized operations.

5 INTERCHANGEABLE FRONT ENDS

For complete job versatility, any one of 5 interchangeable front ends can be used on the Lorain-50...shovel, crane, clamshell, dragline and hoe.

These 5 reasons are only a few of the many reasons why the Lorain-50 is your best bet in a 1-yard shovel-crane. Throughout the Lorain-50, there is more value, true *"Balanced Quality"* to give you fast, responsive, dependable performance in any kind of service. You will find more quality features in the "50" than in any other machine in the 1-yard class.

Be sure to obtain full facts on the "50" from your Thew-Lorain Distributor. Compare Lorain *"Balanced Quality"* in dollar value before you buy.

THE THEW SHOVEL CO.
LORAIN, OHIO

THEW LORAIN 50

SHOVELS • CRANES • DRAGLINES
CLAMSHELLS • HOE

READER COMMENT

High capacity penstocks

Sir: In your article on Tignes Dam and the Malgovert power scheme in France (ENR Dec. 13, 1951, p. 30), one gets the impression that something quite extraordinary in the way of high pressure penstocks has been accomplished. This is, by far, not the case. Heads of 2,460 ft may not be termed "extremely high" in view of the fact that such heads have been developed and are in operation for at least 30 years, and the highest head today is more than twice that. The writer has been connected with the design, supply and erection of a number of these for as far back as 1909.

It is, of course, ridiculous and beyond all conception to say that "without the hooping seventy penstocks side by side weighing altogether 35,000 tons would have been required instead of two penstocks weighing 4,500 tons."

One of the continental pipeworks companies with which I am intimately connected would have designed these two penstocks as follows:

Assuming the same diameter throughout (7.25 ft), the plate-thickness on top would have been ⅜ in. and at the bottom end 2 in., without using any reinforcing in the shape of bands, hooping or cables, but by employing throughout plain electrically welded steel pipes with weld-efficiency at least 100%. The plate thicknesses would vary by one millimeter from the minimum thickness at the top to the 2 in. at the bottom.

The weight of two such pipelines "for the same service" would have been 6,000 tons as compared with the French weight of 4,500 tons.

It may be added that in high-pressure pipeline design safety is of the greatest importance, i.e. full knowledge is needed of the stresses to which hoops, cables and pipe at any time actually are subjected. In my opinion this is not possible with the design under review.

In plain welded pipes, however, with plate thicknesses calculated in accordance with pressures at any point along the pipe, the stresses to which the steel-shells are exposed can be determined and are, consequently, actually known. Therefore plain electrically welded pipes must be considered superior, and if prices are equal, preference should be given to such types of penstocks.

As to price, it looks as if the total lump sum cost of these two types of pipes (4,500 tons against 6,000 tons) would possibly be about equal, since tenders submitted some days ago here in Norway for a high-pressure scheme show that the French unit price (per ton) is about 33% higher than those from the other firm I referred to.

THV. HEYERDAHL
Chairman, Ferrum Montage
Oslo, Norway

EDITOR'S NOTE: Such informative discussion from as eminent an authority as Mr. Heyerdahl is welcome. No claim was made in the article that the 2,460 ft head on the Malgovert penstocks set any kind of a record. It may be significant to point out, however, that few if any high head penstocks have had diameters as great as Malgovert's 7.25 ft, and that the very early ones were much smaller. Mr. Heyerdahl's Venaus plant in Italy built in 1920 comes closest in size with a 6 ft 3 in. diam, on a 3,620 ft head, followed by his Mar's plant in Norway, built in 1942 with a 6 ft diam penstock on a 2,740 ft head. Reference to the impossible alternate of seventy pipes weighing 35,000 tons was admittedly extreme.

Rhine bridges

Sir: Having studied numerous publications concerning the design and construction of postwar German bridges, I can add some additional information on the Dusseldorf-Neuss Bridge which was described in the article "New plate girder span record, 676 ft, is set by Germans on Rhine crossing" (ENR May 1, p.51).

The thickness of the top plates is 0.55 in. to 1.1 in. They are not actually "corrugated," but are provided with a herringbone pattern of ¼-in. welded bars to give a bond for the 1.1 in. thick asphalt flooring. The webs are 0.47 in. thick up to 16.4 ft depth, increasing to 0.63 in thickness at 25.6 ft depth.

The composition of the steel (St50meS or HSB50), which comprises 78.8% of the tonnage, is: Carbon 0.20, silicon 0.50, manganese 1.20, sulphur 0.05, phosphorus 0.05%.

The reference to the Cologne-Mulheim Bridge (which is a suspension structure) should have read Cologne-Deutz. This is a box girder like Duesseldorf-Neuss, but it is riveted not welded. It may also be noted that the Bonn-Beuel box girder bridge has a center span of 643 and not 615 ft. as given in the article.

LOUIS BALOG
Consulting Engineer
Binghamton, N. Y.

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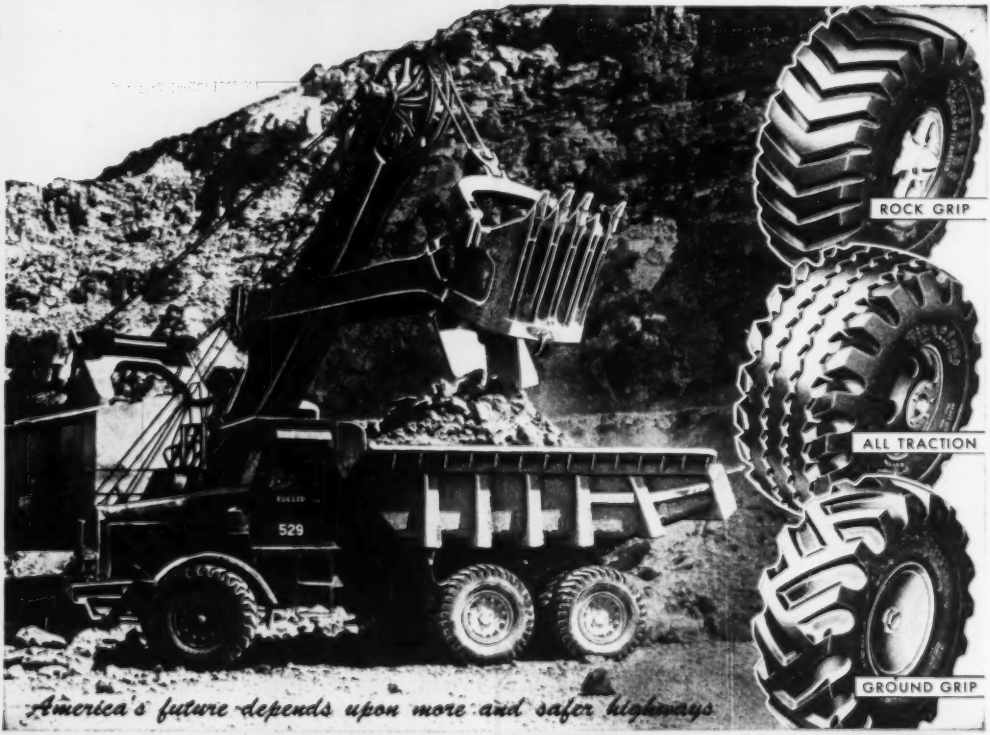

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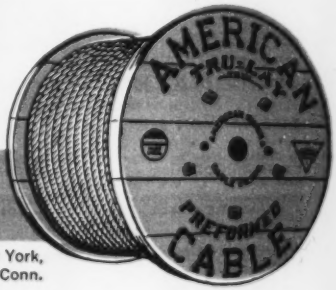

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HYDRAULICS FOR MOBILE EQUIPMENT

Mobile Equipment News

IMPROVES PERFORMANCE • CUTS COSTS

VOL. 1 — VICKERS INCORPORATED, DETROIT, MICHIGAN — NO. 1

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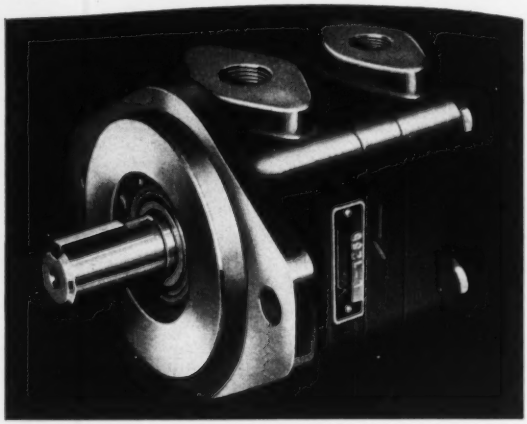

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The two internal outlet ports are diametrically opposite each other. The same is true of the inlet ports. Thus equal and opposite thrust loads eliminate bearing loads due to pressure. Lighter bearing loads mean much longer bearing and pump life.

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Automatic compensation eliminates need for "run in" . . . efficiency is maximum the first time the pump is started. It also assures maximum delivery over a very long life, with none of the gradual falling off encountered where there is no wear compensation.

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At rest and normal starting speeds, the sliding vanes are retracted; only after engine fires do vanes expand and pumping begins.

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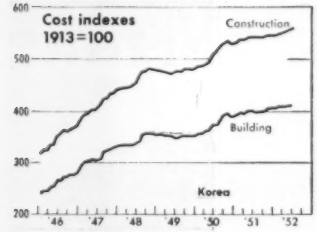
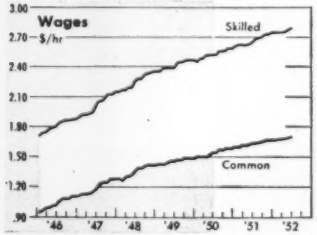
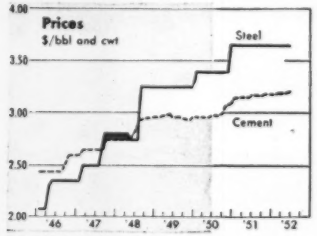
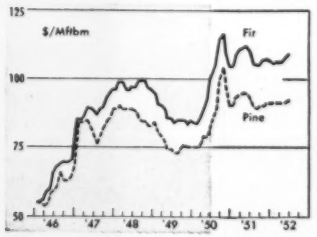
ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

JUNE CONSTRUCTION SCOREBOARD







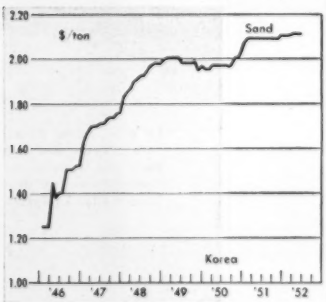


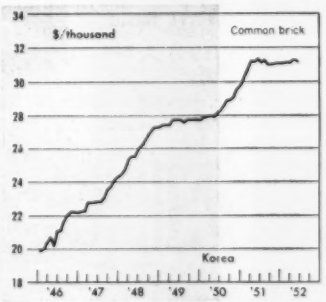
ENR INDEXES (1913=100), 20-cities' average	1952 June	% Change from last Month	% Change from last Year
Construction Cost	561.69	+0.8	+3.5
Building Cost	412.50	+0.5	+2.9
WAGE RATES, 20-cities' average			
Common	$1.706	+0.9	+5.6
Skilled (aver. 3 trades)	2.808	+0.4	+6.0
Bricklayers	3.140	0.0	+7.4
Structural Ironworkers	2.741	+0.6	+5.3
Carpenters	2.542	+0.7	+5.2
MATERIAL PRICES, 20-cities' average			
Cement, bulk, per bbl	$3.199	+0.4	+1.3
Structural Steel, (3-mill aver.), per cwt	3.650	0.0	0.0
Sand, per ton	2.106	0.0	+1.0
Lumber, 2x4 Fir, per M. ft. bm	110.319	+1.3	+0.4
Lumber, 2x4 Pine, per M. ft. bm	93.033	+0.8	+0.3
Common brick, per M	31.126	−0.4	+0.07
Ready-mixed concrete, per c. y	10.911	−0.02	−0.3
Structural Clay Tile, 3x12x12 per M	151.288	0.0	+5.1

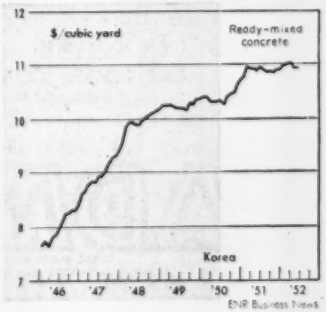
CONTRACTS AWARDED (Millions)	1952 May	1952 5-Mos.	% Chg. from '51 May	% Chg. from '51 5-Mos.
Total U. S. (ENR reported)	$1,434	$5,642	+13.1	− 9.8
Private	737	3,010	+ 5.6	−19.6
Public	697	2,632	+22.2	+ 4.9
Federal	246	868	+17.1	−10.7
ENR Volume Index, '13=100	554	497†	+10.5	−13.8
NEW CAPITAL (Millions)				
Total	$835	$3,256	+ 1.4	−39.5
State & Municipal Bond Sales	365	1,384	−35.9	− 9.8
Corporate Security Sales	437	1,751	+72.0	+48.8
Federal (non-federal work)	33	121	.....	+65.7
Federal (federal work)	....	.....	.....	.....

MATERIAL SHIPMENTS & LABOR SUPPLY (Millions)	1952 Mar.(M) Apr.(A)	3-Mos.(3) 4-Mos.(4)	% Chg. from '51 Mo.	% Chg. from '51 Yr.-Cum.
Cement, bbls, Bu. of Mines	15.993(M)	43.051(3)	− 9.5	+ 4.4
Fabr. Struc. Steel, tons, AISC	0.231(A)	0.991(4)	− 1.2	+12.7
Lumber, mil. ft. bm., NLMA	3.024(M)	8.818(3)	−12.3	− 7.5
Lumber Prod., mil. ft. bm., NLMA	3.031(M)	8.699(3)	− 7.8	− 3.9
Contract Constr. Employ., BLS	2.418(A)	2.335†(4)	− 2.1	+ 0.4

† Average







ENR Business News

POSITIVE TRACTION is important!

WHEN you are handling a truck load of stone or asphalt mix with a Black Top Paver, positive traction is important.

The Adnun brings you four wheel drive—full power on all four wheels at *all* times. There is no loss of traction when turning as there is when braking one crawler to steer. There is no need for oversteering that results in correction and hand work. Steering is smooth and positive without jerking. Wheel design brings you simplicity and ease of upkeep and frees you from the wear and repair characteristic of crawler mechanism.

Behind this is the large, heavy duty engine—50 hp.—25% more engine power than the next most powerful spreader.

These are just a couple of the things that cut costs and make the Adnun fast on the job for its owners. Have you seen the booklet "11 Basic Things"? Let us send it.

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Let down Adnun Retractable Wheels and hoist front end to truck with dump hoist and roll away—no trailer equipment.

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THE CONSTRUCTION WEEK

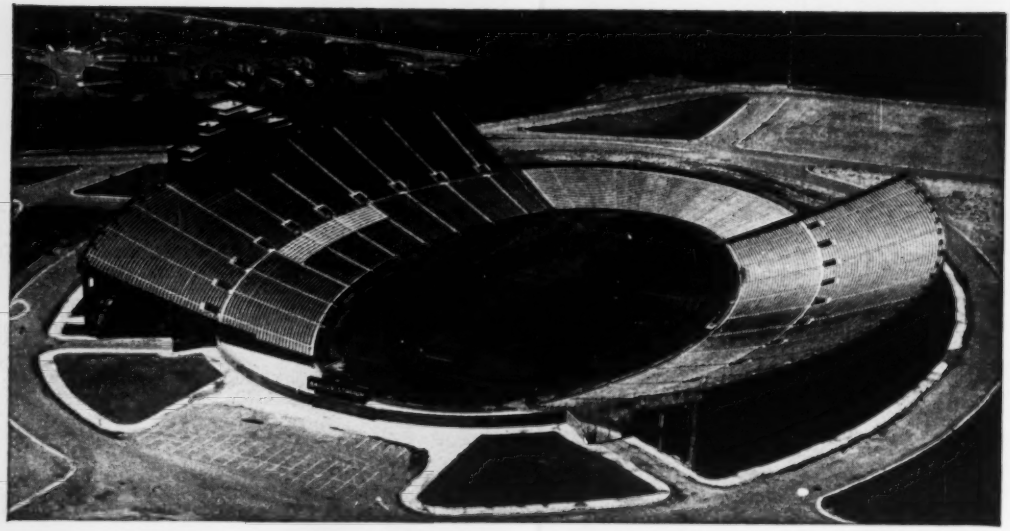
TASK FORCE SUNK—Formation of a special task force to study further relaxation of construction controls was recommended in a Construction Industry Advisory Committee meeting in Washington last week. Although immediate action has been postponed because of the steel situation, group members will be appointed by Frank Creedon, assistant NPA administrator for facilities and construction, following suggestions offered by industry spokesmen. If the task force ever goes to work, its first job will be to report on possible ways to permit self-authorization of materials for apartment houses. Industry members have asked for self-authorization of 25 tons of steel, 750 lb of copper, and 1,000 lb of aluminum per quarter for apartment houses on a per-unit basis.

POWER RUCKUS—With White House blessings, public power last week set up a continuing lobby to battle the private utilities. Fourteen labor, farm, electric cooperative and public power organizations closed a two-day conference, agreeing to set up an "Electric Consumers Conference Committee." Their action followed a speech by President Truman in which he said private power companies are spending millions in a "vicious" campaign against public power.

FLOOD-CONTROL MONEY—President Truman, last week, asked Congress for a special appropriation of $12.6 million so work can start on 11 flood-control projects. The money was asked as an addition to funds previously requested for rivers and harbors work in the fiscal year beginning July 1. Among the projects listed: Dallas Floodway in Texas, $2 million; Wheeling-Benwood project in West Virginia, $2 million; Corning, N. Y. project, $1.5 million; Oklahoma City project, Okla., $1.2 million; Indianapolis project, Ind., $1.2 million; Havre, Mont., $1 million; middle Rio Grande project, N. Mex., $1 million. He also asked $7 million for emergency bank stabilization on the Arkansas River and repair of damages done by the recent Missouri and Mississippi floods.

HOUSING MONEY PROSPECTS DIM—Pundits in Washington are certain that no new federal-aid funds for housing will get through Congress before lawmakers pack up for the conventions in July. The Senate has already cut down the appropriations requested by 40%, but the House hasn't even scheduled hearings before its Banking and Currency Committee—and won't for probably another two weeks. Senators did, however, okay grant of another $900 million to Fannie Mae for purchase of housing mortgages.

IN THIS ISSUE—Housing developments take construction spotlight (p. 21) . . . Floods start in California (p. 22) . . . Is flood insurance practical? (p. 23) . . . Court returns steel mills (p. 24) . . . Bonny Dam is dedicated (p. 25) . . . Showplace for school builders (p. 26) . . . Great Lakes damages (p. 27) . . . End of the road for Brown and Root case (p. 28) . . . Sand drainage reversed with well-point system (p. 34) . . . Levees protected against hurricanes (p. 37) . . . How to rally taxpayers behind pollution control (p. 40) . . . Construction lore triumphs in the coal fields (p. 43) . . . Prestressing sets new records on Le Havre harbor job (p. 46) . . . Nation's second largest municipal airport opens in Pittsburgh (p. 50) . . . Ten-fold expansion of integrated company under leadership of O. F. Sieder (p. 62) . . . Industrial building may be on way to second highest year in history (p. 123) . . . New products (p. 144) . . . Editorials (p. 152).



DURAPLASTIC* scores another touchdown in Texas stadium

THE REFEREE is W. F. Swigert of Swigert Construction Company, Waco, Texas, contractor for Baylor University's huge new stadium. His verdict: "We are well pleased with the performance of Duraplastic in any type of construction."

Mr. Swigert says his firm has used Atlas Duraplastic air-entraining portland cement for years because "Duraplastic-made concrete is more workable, and there is less segregation of aggregates."

Important points! Duraplastic also minimizes water-gain, generally improves surface appearance, fortifies the finished concrete against the effects of freezing-thawing weather . . . and in paving, resists the scaling action of de-icing salts.

YET DURAPLASTIC COSTS NO MORE

It sells at the same price as regular cement and requires no unusual changes in procedure. Complies with ASTM and Federal Specifications. For descriptive booklet, write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Ave., New York 17, N.Y.

NOTE UNIFORM SURFACE appearance of concrete in close-up of this stadium job. With Duraplastic, less mixing water is needed for a given slump. The mix is more plastic and more uniform; aids proper placement.

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ATLAS® **DURAPLASTIC**

AIR-ENTRAINING PORTLAND CEMENT

A UNIVERSAL ATLAS PRODUCT

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Makes Better Concrete at No Extra Cost

"THE THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel Subsidiaries—Sunday Evenings—September to June*

HOMEBUILDERS CONFER—During a break in proceedings at last week's National Association of Home Builders' executive committee meeting in Washington, officials discuss new plans. Left to right—Earl "Flat Top" Smith, member of the executive committee; Frank W. Cortright, executive vice president; and Alan Brockbank, president of the NAHB. (Reni photo.)

Homebuilders see sales drop —map low-cost housing

Board of Directors business sessions of the National Association of Home Builders in Washington last week had grim overtones.

Home sales across the country have stopped cold.

The reason: uncertainties surrounding the future of Regulation X. At the first official indication a month ago that down payment requirements for homes would be modified, sales slumped. They are now at a virtual standstill until the modifications are made by the Federal Reserve Board. Action is expected before the end of this month.

NAHB has campaigned aggressively to have Regulation X lifted entirely. The Board of Directors last week was told the regulation will remain, but there will be some relaxation of down payments on houses above $12,000, and a smoothing out of requirements below that price range. They predicted that if the regulation is relaxed sufficiently, more homes will be built in the price range below $12,000 in the next six months than in the past six months. But their hands were tied in doing anything more to force that relaxation.

Although the short-term outlook for home sales was bleak, the Board of Directors busied itself with plans to: (1) Get low-cost housing out of the realm of public housing and back into the hands of private builders, and (2) strengthen the prestige of its members through warranties and bonding.

• **Private vs. public housing**—NAHB has consistently opposed public housing. Last week Director of the Armed Forces Housing Agency, Tom Coogan, asked for and got their recommendation that a $50-million authorization for construction of public defense housing be used exclusively for temporary housing for military use during the emergency.

And it carried its battle with low-cost public housing ahead on two fronts.

• **In Los Angeles,** where the battle over public housing has been loud and long, builder Fritz Burns put up more than 200 one-bedroom apartment units renting for $45 a month. More are underway. They are occupied at rentals competitive with that for public housing units.

Now NAHB is incorporating engineering and design features of this and some other low-cost apartment type projects, and is drawing up a basic plan. Within 60 days it will send out the plan to all 195 of its associations, and request that each association sponsor at least one project of eight units to stimulate other builders to enter the field.

• **In addition,** its technical staff plans to extend development of a low-cost two-bedroom house that will sell to a lot owner for $3,000. NAHB hopes to be able to sell houses from now on under $5,000 for 5% down, if they can get the financial arrangements. The pattern will follow houses built in San Angelo, Texas, which are being sold on a $500 lot for $3,500. They contain nearly 600 sq ft of living space, have no windows on the sides, but large open window space in the front and back.

• **Compulsory warranty blocked**—For several years NAHB has been urging its members to adopt a warranty policy to go with the sale of each home. Early this year, it made available to its members a sample warranty. Predictions were made that the Board of Directors would make the warranty compulsory for membership in the NAHB at this session.

The proposal was made; but its adoption was blocked by one builder who stated that this is still a free country and if the warranty was made compulsory, he would no longer be a member of the NAHB. Adoption of the warranty remains optional, but NAHB says all builders will be forced by competition to adopt it or a better one.

The board opposed the compulsory warranty contained in the Teague bill now being considered in Congress, which would apply to homes sold under a V.A. guarantee.

Recommended was adoption on a national scale of a bonding policy. It is exploring the possibilities of the national association obtaining a master performance bond which would be made available to builder members or through local associations. Such policies are now in effect in Chicago and Pittsburgh.

Beneath the record snow pack, in the California Sierras, flow swollen mountain streams carrying flood waters to the valleys below. Measurements made at the weir give the runoff for Castle Creek basin.

Snowpack unleashes flood

By Larry Wise
Associate Editor

California's San Joaquin valley farmers, already hit by an estimated $10 million in spring floods, have been told by the Corps of Engineers to prepare for the worst.

By the end of May more than 40,000 acres of rich cotton and grain fields in the Tulare Lake basin were flooded. Engineer hydrologists said the flooding may eventually cover 100,000 or more acres.

Northward in the valley, the San Joaquin River gave indications of serious trouble. Army Engineers, directing levee protection operations, began building a new barrier near Banta in the hope of stopping the water, should the present levee break at that point. Earth-moving equipment is working on a 24-hour scheduled in the rush to build the new levee.

Army Engineers have established a temporary office at Modesto to be on hand on the San Joaquin during the next 30 days of peak runoff.

Six breaks occurred in May on the Kings and San Joaquin, but inundation there was confined principally to bottom lands. The Mokelumne River cut a 150-ft section from a levee near Lodi and flooded 700 acres of farmland.

All threatened levees are being patrolled around the clock for signs of weakening.

The crisis along the rivers, the Engineers hydrologists report, will occur in the middle of June when the snow melt runoff reaches its peak. Added to the danger in the San Joaquin-Sacramento Rivers delta will be the usual high ocean tides, which will stop the rivers' water from gaining a free sweep to the ocean.

• **May win**—Preparing "for the worst," individual farmers, levee districts, county officials and disaster committees are working with the Corps of Engineers and may be able to win on some fronts.

Much depends on the weather. Unseasonably high temperatures can dump the melted snowpack in the valley in uncontrollable volume. However, at the end of May, cooling weather was predicted for the area, giving new hope to flood fighters.

The Tulare Lake basin battle against flood waters—which farmers on the rich reclaimed land have waged periodically with little success since 1898—is taking a new turn this year.

For the first time, the odds now are in favor of the farmer—in spite of one of the greatest snowpacks in history on the lake's Sierra Nevada watershed—using heavy earth-moving equipment and improved methods of engineering, he now seems to be winning what he needs most—time to harvest his multi-million-dollar crop.

• **Vast area**—The basin itself includes some 300 sq mi of land on the San Joaquin valley's west side. It has no outlet to the sea and is fed by four rivers, the Kings, Kaweah, Tule and Kern.

First farmed late in the 1800's, the lake bed has filled and emptied more or less regularly, last time being almost completely flooded in 1938.

In 1944, the modern history of the lake began. Big farmers, specializing in agricultural methods as mechanized as the auto industry, moved in to master the lake. They quickly raised new levees and called in engineers to construct drains, canals, sluices, bulkheads, watergates, pumping plants, diversion works and other projects necessary to successful big-scale farming in the basin. The lake was contained within a few thousand acres and eventually dried up. The farmers turned to deep-well pumping.

But the past winter brought new threats of floods—probably for the last time as multi-million-dollar flood-control dams are under construction on the Kings and Kern rivers. They are expected to eliminate high water in the basin forever. Pine Flat, though unfinished, is prepared to store about 190,000 acre-ft, and already is easing pressure on the San Joaquin.

• **Early delay**—At first, the big landowners hesistated to take steps to meet the threat this year. Some declared battling Nature was hopeless and that it would be useless to expend hundreds of thousands of dollars to strengthen levees. Others said flooding would bring new fertility to the soil and that the farmers could well afford the immediate loss.

However, the issue was drawn early this week when Clarence A. Salver, cotton and grain farmer in the basin, moved to protect his $800,000 barley crop. Other farmers followed suit to keep their lands from going under; the levee-building "war" was underway.

To date, the Tulare basin farmers have gambled an estimated $1 million in an effort to contain the rising lake. Dikes now stand about 19 ft above ground level. Using 120 heavy earth-moving machines with crews working day and night, the soggy 7-mi Salver levee on the west side of the basin has been raised 15 ft. The El Rico levee on the east side went up 10 ft, as did the 7-mi north side Levee No. 749. The lake runs into high ground on the south side.

Although some 40,000 acres of fertile land are under water within these levees, a much larger, more valuable area is still dry. Engineers at the Tulare Lake Irrigation District estimate the water would cover more than 100,000 acres without the dikes.

Eventually, all three of the big levees are expected to give way to the water. Levee No. 749 is in immediate danger and probably will go out by early June, flooding an additional 20,000 acres. And the entire 100,000 acres is expected to go under later.

But the farmers will have won their gamble. Most of $10 million in grain crops will have been harvested.

Flood insurance held not practicable

Insurance policies are no substitute for levees and dams as a means of protection against flood losses. This is the conclusion of the Insurance Executives Association, which has just completed a study of the possibilities of adding flood damage insurance to the list of coverages that private underwriters offer.

"As a long-range program," say the insurance men, "it appears that an accelerated flood control program supplemented by such relief payments as are necessary on account of flood damage would be more in the interest of the public than a program of so-called 'Flood Insurance' which could not be self supporting." Finding flood insurance for fixed property impracticable as a business venture the underwriters all state that, "There is no reason to believe that the government would encounter fewer obstacles in such an undertaking than private insurers."

• **Engineering study**—The study was predicated on a report on floods and flood damage prepared for the IEA by Parsons, Brinckerhoff, Hall & Macdonald, consulting engineers, New York. Developed by H. Alden Foster of the firm, the report analyzes the reliability of probability studies and the limitations of existing statistical data used for flood predictions.

It outlines the procedure required for estimating flood damage to particular properties and a method for determining mean annual damages that might be anticipated. Mean annual damages were worked out for a group of properties in Lowell, Mass., on the Merrimac River and at Martins Ferry, Ohio. A significant finding was that the ratio of mean annual loss to maximum probable loss varied widely on individual properties, and even when averages over a group of properties ranged upwards to 20%.

• **Insurance difficulties**—With the report as a background, the insurance underwriters, "undertook its study objectively to determine whether some means could possibly be developed by which flood insurance could possibly be offered to the public at a price which the public could afford to pay and on a basis which would permit insurers to enter this field with reasonable underwriting safeguards." They found these things:

• There would be difficulty in defining a flood for purposes of assessing damages and fixing rates.

• Since only property owners exposed to real flood dangers would buy insurance, even at reasonable rates, the opportunity for spreading the risk would be lacking. Also, some insurance companies, which have tried flood insurance on fixed property, discovered that while some of their policies were bought immediately after a flood, owners were inclined to let their policies lapse after several floodless years had passed.

• Hydrological surveys of each river and section thereof would be required as well as a detailed survey and appraisal of each property to be insured. This complex study could very easily make the expense of rating properties prohibitive.

• Rates would be prohibitively high since they would have to cover average annual losses plus underwriting expense. In Martins Ferry, Ohio, for example, average annual losses for 17 residential properties ranged from 2.6% to 22.3% of the maximum probable loss, while the ratio for the group as a whole was 11.78%. On 21 commercial properties in the same city the range was 2.40% to 62.92%, with an average for the group of 20.57%. In Lowell, Mass., on 54 properties, the range was from .96% to 17.5% of maximum probable loss.

• Even if all property owners with a flood exposure were to buy insurance, the catastrophe potential would be so great as to threaten the entire solvency of the insurance business. Not only is there an estimate of $466 million average annual physical damage to property (by the Corps of Engineers), but losses larger than this can occur in a single region, as it did in the billion-dollar flood of the Kaw River last summer.

• Flood insurance falls into the same class as war damage insurance, and therefore is in a class beyond the scope of straight insurance without a subsidy.

• **Some flood risks now covered**—The insurance companies point out that they are by no means free of exposure to loss from flood under many existing policies—comprehensive coverage on motor vehicles, for example, policies covering merchandise in transit and all-risk policies covering dredges, contractors' equipment, certain personal property and bridges and tunnels. However, except for bridges and tunnels, the property covered is mobile in character and could be moved out of danger. It is the protection of fixed property that raises the big problems that cannot be solved by insurance.

No mention is made in the report of President Truman's proposal last fall that government flood insurance be established, but it was plainly this fact that prompted the insurance companies to take another look at the possibilities of private business doing the job. The President made two recommendations to Congress, both of which were turned down. One was to set up a $50-million trial flood insurance fund, the other to appropriate $190 million to indemnify flood victims up to 80% of their real estate and personal property loss. This would provide a maximum single payment of $20,000.

Giant concrete monolith to topple into river

A 180-ft high, 6,000-ton concrete monolith will be toppled into the Pend d'Oreille River, just north of the United States border in British Columbia this summer, as part of a $35-million dam project.

The 18-story-high pillar will partially block the river to permit work on Consolidated Mining & Smelting Co., of Canada's Waneta Dam. Base for the monolith already is in place under the river's spring-high waters. When the river recedes, about July, the monolith will be erected and should be ready for tipping in late summer or early autumn.

A winch-powered cable attached to the top of the structure will topple it. Direction of the fall will be guided by a steel hinge embedded in the concrete at the bottom of the monolith. Underside of the monolith will be shaped to fit the contours of the river bed.

The power dam will be 1,000 ft long, 250 ft high and 230 ft thick at the base. When completed in 1953, the project will develop 210,000 hp from two units, and there will be provision for two more to raise the capacity to 400,000 hp. This compared with British Columbia Electric's Bridge River development of 186,000 hp from three units.

Power will be used for Consolidated Mining & Smelting Co.'s extended zinc plant at Trail and its new fertilizer plant at Kimberley. Stone and Webster, Canada Ltd. of Toronto are in charge of the project. Northern Construction Co. and J. W. Stewart Ltd. have contracted for the excavation and construction of the dam and powerhouse.

Engineering twists for the project include dumping of 250 tons an hour of selected rock by diesel trucks on a mile-long rubber conveyor belt to piles of aggregate which are in turn fed by tunnels to the concrete mixer overlooking the damsite. From the other side of the hill a 6-in. steel pipe brings cement for the mix.

Compromise on federal aid for roads voted by House; other bills rushed

The House action approved by a 191-30 vote HR 7340, which provides federal aid for highway construction for fiscal 1954 and 1955. The House voted $550 million for each year, the same amount recommended by the House Committee on Public Works. The bill provides for the following aid, to be matched by state funds: primary roads, $247.5 million; secondary, $165 million; urban $137.5 million.

In addition the bill, as passed, provides for outright grants of $22 million for forest highways; $19,250,000 for forest roads and trails; $10 million for Park Service roads; $10 million for parkways; and $10 million for Indian roads.

House action also provided $8 million for each of the two fiscal years for the Inter-American Highway; $12 million for defense access roads to U. S.-owned timber land and mineral lands; and $200,000 for highway safety conference.

Only change in bill by the House was in the amount to be contributed toward construction of Rama Road in Nicaragua. It cut amount from $4 million to $2 million for the two years.

House bill represents a 10% increase over aid voted last year and this increase is based on increased index cost of construction.

On the Senate side, the Public Works Committee has written a bill calling for $600 million each for the two years in funds to be matched, with some minor differences in grant funds. The Senate bill has not been scheduled yet for floor consideration.

I. Policy on reserves

Representatives of professional engineering groups appeared before a Senate Armed Services Subcommittee to oppose military control of the recall to active duty of reservists. Representatives of the Engineering Manpower Commission of the Engineers Joint Council and of the National Society of Professional Engineers joined representatives of labor, management, and the chemical industry in calling for setting up of a civilian agency to handle recall.

Several witnesses pointed out that the problem has reached serious proportions due to growth of the reserves. In a survey conducted by the National Society of Professional Engineers, it was found that one out of every four who replied was in a reserve organization, according to Paul H. Robbins, executive director. The survey disclosed that in the group under 30 years of age, the proportion of reservists was 37%.

Carey H. Brown, chairman of the Engineering Manpower Commission of the Engineers Joint Council, testified before the group on the need to distinguish between engineers and technicians.

"We cannot match our possible enemies in numbers," he said. "It is therefore fundamental that each person be utilized at his highest capability. In view of the wide range of talent and training necessary to staff our civilian economy, military operations and production, the wisest system of selection is necessary. . . . The situation is aggravated by the great confusion that exists generally as to the distinction between a professional engineer and a technician. For example, the needs of the operating units of the armed forces are primarily for technicians and operators and not for professional engineers. Yet in many cases, billet designations may call for 'Engineer'."

II. Committee action . . .

. . . The Senate Appropriations Committee in reporting on the House-approved Independent Offices Appropriation bill, recommended 45,000 new dwelling units under the public housing program for the next fiscal year. This compared with the 5,000 authorized by the House and the 50,000 which was requested by the Administration.

Court voids seizure: New steel strike

For the second time in less than two months, steel mills this week cooled down their furnaces and stopped their rolling mills. The latest stoppage stemmed from a U. S. Supreme Court decision that declared the government's seizure of the mills illegal.

The court's action Monday was not unexpected. Many observers felt the court could not do otherwise than uphold an earlier lower-court decision also declaring that the President has no legal right to seize private industry under such circumstances. The fact that the court's majority was decisive (6-3) served to emphasize the point.

The fact that the order was not unexpected in other quarters was apparent also when Philip Murray, CIO Steelworkers' president, issued orders for a new strike within minutes of the decision.

The steelworkers' action, coupled with the court's ruling, appeared to leave President Truman with only one alternative to permitting the strike to continue until management and labor reach a decision: the invoking of the Taft-Hartley Act's 80-day no-strike injunction.

The immediate effect of the strike on the construction industry will depend, of course, on the duration of the strike.

However, estimates by steel experts and from ENR's own tabulations of previous strikes (ENR Apr. 10, p. 23) indicate this pattern:

- Loss of steel output during the strike will be between 2.5 and 2.8 million tons a week.
- Reinforcing bar production will be lost at the rate of about 22,000 tons a week.
- Structural production losses will be about 33,000 tons a week.
- The first real drop in shipments of structural steel will come within about four weeks from the date of the strike.

However, there is considerable debate both in the construction industry and among steelmakers as to the current shape of the country's supplies of steel. When President Truman seized the mills some months ago, he said in effect that any stoppage of production then would be disastrous. Steelmen refuted that claim—and apparently were backed in their beliefs by some government agencies (NPA for one), which almost immediately began a rapid relaxation of controls on the metal.

And with the rapid normal upswing of construction work as the summer season approaches, there have been few, if any, reports of shortages of structural steels, or of reinforcing bars. In fact, the situation was so good that recently (ENR Apr. 17, p. 24) the steelmakers gleefully foresaw a comeback of structural steel as opposed to reinforced concrete.

They said that for five weeks prior to the abortive shutdown of a month ago, structurals had been coming into easier supply; and because of a cushion in inventories, there would probably be no serious shortage of fabricated structural steel for some time to come. Since losses in the steelworkers' first strike (after a federal district court injunction forbidding seizure) the inventory has continued to build.

CONSTRUCTION RECORDS were set at Bonny Dam, on the upper Republican River in Colorado, which was completed 17 months ahead of schedule. Already impounding 33,400 acre-ft of water, the reservoir will eventually hold 132,000 acre-ft for flood control and 43,000 acre-ft for irrigation use. (Bureau of Reclamation photo.)

Reclamation dedicates its Bonny Dam

June is dedication month in the Republican River valley.

Last Sunday (June 1) the Bureau of Reclamation dedicated its $13-million Bonny Dam on the South Fork of the Republican in eastern Colorado. Next Tuesday (June 10) the Corps of Engineers will dedicate its $46-million Harlan County Dam on the main stem of the Republican in southern Nebraska.

Bonny Dam isn't a big dam, as multiple-purpose dams go, but it is highly important to that part of the country. Primarily, it is designed to control frequent raging torrents in that portion of the erratic Republican. Its total storage capacity of 175,000 acre-ft includes 132,000 acre-ft for flood control, and 43,000 acre-ft for irrigation and silt retention.

• **Why it is needed**—The need for its construction was made all too clear back in 1935, when a cloudburst produced a 103,000-cfs discharge at the damsite which claimed 40 lives in that area. Total damages from this flood exceeded $9 million in the Republican Basin, and it took a total of 112 lives.

Located near Hale, Colo., about 6 mi west of the Colorado-Kansas state line, Bonny Dam is a rolled earthfill structure 9,300 ft long and 128 ft high above stream bed. It carries a 30-ft roadway along its crest, with a concrete bridge spanning the spillway.

The total cost of Bonny Dam and appurtenant works to date is $13,130,000. In addition, irrigation works yet to be built, to serve the Bureau of Reclamation's St. Francis irrigation unit below the dam, are estimated to cost $1,900,000.

• **Controversy over diversion**—Although the construction of Bonny Dam was authorized by Congress in 1944, it developed that the irrigation phase of the project conflicted with existing agreements between Colorado, Kansas and Nebraska governing the distribution and utilization of the Republican River and its tributaries.

But Congress went ahead and appropriated funds for construction of the dam, primarily for flood control. Currently, the Bureau of Reclamation is determining the most practicable plan for development of the project's irrigation potentialities without violating existing agreements between the states. The plan is nearly finished and the construction of irrigation features will be programmed as soon as irrigation districts are formed and repayment contracts are executed.

• **Construction records**—Several construction records were established during the building of Bonny Dam. When the Bureau of Reclamation awarded a contract for construction of the dam and an access road, to Utah Construction Co. in November 1948, it allowed 3 years and 10 months for its completion. It was completed 17 months ahead of schedule.

During the first year the contractor excavated over 1,000,000 cu yd of material in each of four consecutive months. In November he excavated 1,334,000 cu yd and placed 1,043,000 cu yd of embankment.

Utah concentrated its activities chiefly on excavation of borrow material and embankment construction. Most of the other work was subcontracted to nine subcontractors.

Horner and Switzer, Denver, did the concrete work, structure excavation and machinery installation. Colorado Constructors, Inc., Denver, built a 3-mile access road to the damsite. And the riprap was placed by Cass Construction Co., Ogallala, Neb.

• **Engineers in charge**—Bonny Dam was designed and constructed under the direction of L. N. McClellan, chief engineer, Bureau of Reclamation, Denver, as a unit in the Pick-Sloan plan for development of the Missouri River Basin. Avery A. Batson is regional director and H. E. Robinson is district manager. Construction engineers were W. S. Byrne, during the first 7 months and C. L. Hutch for the remainder of the job.

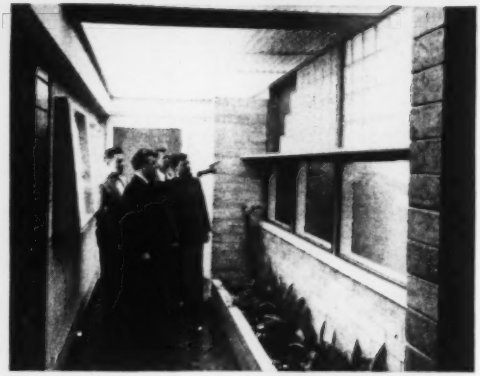
Chicago Edison plans $300-million expansion

Commonwealth Edison Co. of Chicago, one of the nation's largest operating electric and gas utilities, last week announced plans to raise $300 million in new capital in the next three years, to finance expansion. Actual expenditures for new construction and improvements is estimated to run to $500 million.

VISITING SCHOOL EXECUTIVES study classroom layouts incorporating new concepts and materials at Stanford's School Planning Laboratory.

Show case . . .

to study school building problems



EDUCATORS note new wall finishes, small permanently closed windows and glass block arrangement, pointed out by lab chief MacConnell.

School executives are flocking to Stanford University's unique School Planning Laboratory these days to study new layouts and materials in full- and scale-sized installations that are recommended by the lab's researchers. The visitors agree that viewing actual classrooms is a lot more convincing than just looking at blueprints, especially where new concepts and materials are involved.

About $80,000 worth of items are on display at the California college. All are donated by firms all over the country who are willing to show their products on a performance basis and run the risk of criticism as well as praise.

The laboratory's main objective is to solve the many specialized problems of school plants. Its staff is currently investigating products in the following categories: Wall finishes, daylighting, artificial lighting, heating, ventilating, desks, chairs, blackboards, flooring and ceilings.

The facilities also serve for instruction of students in the School of Education. Dr. James D. MacConnell is laboratory director.

HOW TO ACHIEVE uniform brightness contrasts, key to visual comfort in classrooms, is demonstrated with aid of reflectometer.

CUT-AWAY view of new heating unit clearly illustrates operation and how it can be worked into existing and proposed layouts.

Great Lakes survey shows $61 million total damages

Extraordinary high levels in the Great Lakes have caused a total of $61,250,000 damages to property along the United States shore lines during the past year. Wave action caused $49,970,000 of this amount, and inundation, the remaining $11,280,000.

These figures were released last week in Chicago by Col. Wendell P. Trower, Great Lakes Division Engineer, Corps of Engineers, following a final meeting with his five district engineers who conducted the survey—eight representatives of the Great Lakes states, and nine officials of other federal agencies.

A detailed report of the damages to lake shore property will be submitted this week to Lieut. Gen. Lewis A. Pick, Army Chief of Engineers, together with a recommendation by Col. Trower whether or not to follow up this preliminary report with a more detailed, comprehensive study of measures needed to repair present damages and the economic feasibility of procedures to prevent recurrence of damage from the rising lake levels.

Should such a long-time study be deemed advisable by General Pick and the Board of Engineers for Rivers and Harbors, it will be submitted for approval to the Committee on Public Works of the House or Representatives, which authorized the preliminary survey.

• **Damage figures**—Details given in Col. Trower's report—which excludes damage to Canada's lake shores—will show the following Great Lakes damages.

	Total Damage	Damage per mile of shore line
Lake Michigan	$30,640,000	$18,700
Lake Erie (Including Niagara River above International Falls)	11,920,000	22,100
Lake Superior (Including upper St. Mary's River)	4,360,000	3,100
Lake Ontario (Including lower Niagara and St. Lawrence Rivers)	7,350,000	11,800
Lake Huron (Including lower St. Mary's River)	2,740,000	2,700
Lake St. Clair (Including St. Clair and Detroit Rivers)	4,240,000	21,100

Lake Michigan shore property suffered the greatest damage from wave action, totaling $29,100,000, while property along the shores of Lake Erie was hit the hardest by inundation, which totaled $4,750,000.

Although damage due to inundation is less than 20% of the total damage, the areas affected are extensive. The hardest hit areas include: the west end of Lake Erie, Lake Ontario west of Rochester, N. Y. (ENR May 22, p. 27), the shores of Lake St. Clair and along the mouth of the St. Clair River, Saginaw Bay, Green Bay, and the Duluth area on Lake Superior.

In those areas the degree of inundation ranges from flooding of front yards and access roads to high water covering the ground floors of dwellings. Some homes had to be abandoned others had to be torn down.

• **Direction of study**—If a long range study is recommended, and authorized by Congress, said Col. Trower, it must take into account the three principal interests: reduction of damage to lake shore property; navigation requirements; and the protection of power plants using lake waters. It would also require cooperation with Canada in the construction of certain protective works.

An over-all study of lake shore protection would include the following remedial measures: (1) Adjustment of artificial factors that affect lake levels relative to diversions in and out of the lakes, and the changing of connecting channels; (2) a coordinated system for regulating all of the lake levels by constructing gated structures either across the entire width or a portion of the outlet channels and; (3) the construction of protective works—such as sea walls and groins—to protect the foreshores from wave action and currents during high lake levels.

"Such a large-scale undertaking, however, will take a long time to complete," said Col. Trower, "and major reliance must be placed in shore-line protection for some time to come."

One encouraging bit of news came out of the Chicago meeting last week. An average of single gage readings showed that the levels of Lakes Michigan and Huron had risen only 0.1-ft during May, compared with the long-time average May rise of 0.3 ft. The May rise of Lake Ontario was 0.27 ft, as against a normal rise of 0.34 ft. And the average level of Lake Erie held constant at el. 574.70 throughout May, compared with a normal rise of 0.3 ft during that month.

"While these fluctuations in lake levels are minor," said Col. Trower, "the fact that they are less than average, gives some small hope that additional rises this summer may be less than expected."

NEWS BRIEFS

• **More trouble**—Indictment of the contractor and two engineer-inspectors on manslaughter charges after collapse of a temporary highway bridge over the Roanoke River (ENR April 17, p. 27), now has led to two suits being filed against the contractor seeking damages totaling $61,122.37. The suits were filed against Harvey H. Stewart of Charlotte, N. C. by the administrator of the estate of a truck driver killed in the mishap, and by the Hampton Trucking Co. which lost a tractor-trailer and cargo.

• **Highway and bridge**—Controversy over the northern terminus of the projected West Virginia toll expressway was ended when the State Turnpike Commission decided on a point a short distance east of the Charleston city limits. Construction of the $96-million expressway is expected to start this fall. . . . The Mackinac Bridge Authority has applied to the Reconstruction Finance Corp. for an $85-million loan to build a bridge connecting the upper and lower portions of the Michigan Peninsula.

• **Occupational hazards**—Narrow escapes were reported on two big hydroelectric projects recently. Twelve men working inside a tunnel at the Bureau of Reclamation's Eklutna project near Anchorage, Alaska, were nearly trapped by a rock slide which blocked the tunnel entrance. They were able to crawl out through a small opening in the rubble only moments before a second slide completely blocked the entrance and smashed air-vent lines. At Chief Joseph Dam near Bridgeport, Wash, the Columbia River sucked fill from within the cell of a coffer dam. Sixty-five workmen were evacuated as water within the protected area rose to a height of four feet before the breach was repaired.

• **Toll rates set**—Toll rates ranging from $1 for a motorcyclist up to $5 for heavy trucks were set by the Maryland State Roads Commission last week for the new $44-million Chesapeake Bay Bridge.

• **Power expansion**—The Virginia Electric and Power Co. will spend $50 million in 1952 to expand and improve its facilities. Largest individual item will be $19 million on the first unit of the $33-million steam power plant at Portsmouth now under construction. In addition, VEPCO may spend $5 million on a hydro plant at Roanoke Rapids, N. C.

At long last

Texas supreme court ends open-shop case

The Brown & Root, Inc., labor dispute, in which both sides claimed victory, reached the end of the legal road last month in Austin, Texas.

The state's supreme court refused to hear an appeal by the Houston, Tex., construction firm against Texas labor unions.

The court, at the same time, dismissed an appeal by the Texas State Federation of Labor, which had asked that its application not be considered if the court also turned down Brown & Root's request for writ of error.

This double-barreled action by the court left an earlier decision of the Third Court of Civil Appeals undisturbed.

Both sides had claimed victory under the Civil Appeals Court ruling but both had seen fit to seek supreme court review.

The civil appeals ruling, which will remain in effect, sustained the trial court's order, which banned union picketing of Brown & Root for unlawful purposes. Brown & Root claimed this as a victory.

But the court also held the injunction could not be used to prevent peaceful picketing of the firm for lawful purposes. The ruling also held that the unions did not need advance court approval to picket. The federation and 67 other labor organizations hailed that part of the opinion as a decision in labor's favor.

It was on this point that Brown & Root had appealed, declaring the modified injunction put the burden of proof on the wrong party since Brown & Root must again go into court to prove any future picketing is unlawful.

• **Case history**—Brown & Root filed the suit in 1950, charging that construction unions were trying to put it out of business through picketing and general harassment of both the company and its suppliers.

The unions replied that Brown & Root was engaged in an effort to destroy organized labor in the state.

A district judge granted a temporary injunction which Brown & Root sought, restraining the unions from interfering with the company.

Attorneys could ask the supreme court for a rehearing on its decision. But unless the case takes an unusual course, the court's action is final.

Thus comes to an end a long, bitter fight by Brown & Root on the one hand, and the 67 labor organizations which have fought it through all the Texas courts. Both sides are apparently satisfied by the decision, but some spokesmen on both sides privately complain that the issue of the open-shop is still in doubt.

CISC to revise rules on homebuilding rates

The Board of Directors of the National Association of Home Builders was told at its meeting in Washington last week (see page 21), that the Construction Industry Stabilization Commission is going to restudy the entire wage structure as it relates to the homebuilding industry.

Changes contemplated will recognize the historic wage patterns in homebuilding as distinguished from heavy construction—including incentive pay and fringe benefits. At the present time many homebuilders are in violation of Wage Stabilization Board rules because they pay above the scale of area rates for key men.

THOMAS J. KALIS, co-chairman of the CISC, which will re-examine homebuilders wages.

Preglazing ban up to NLRB as contractors wage fight

The Joliet, Ill., contractors' association was back before the National Labor Relations Board last month to get a settlement of a long-disputed secondary boycott by the AFL glaziers' union, Local 27.

Back in 1947 the union tried to enforce its rules against the use of windows, doors and storm windows which are glazed in factories instead of on the construction site. The union would not permit union glaziers to work on a construction job where preglazed material was used.

The contractors' association decided to fight the ban and got a court injunction against the union in 1948 to stop a secondary boycott against contractors using preglazed material.

In 1950, following a trial examiner's recommendation that the union stop the boycott, the board refused to act in the dispute on the ground that it was a local problem. NLRB does not assert jurisdiction in disputes affecting activities essentially local in character.

Early this year the association contested the board's refusal to act in the Court of Appeals in Chicago. The court overruled the board, holding it should decide the issue because most preglazed material came from interstate trade.

NLRB held a hearing May 20 to decide the merits of the association's claim. Its own examiner has already asked that the union be ordered to end its ban on preglazed materials. The board must decide whether the union's action amounted to a violation of the secondary boycott provisions of the Taft-Hartley Act.

The injunction against the ban was dissolved in 1950 when NLRB dismissed the case.

Wage scale ordinance may determine minimum

A municipal ordinance proposed in the Denver City Council (May 22) would require contractors who work for the city to pay prevailing wage scales.

Each contract of more than $100 would contain a statement of the minimum wages paid. It would further provide that if a contractor paid less than that wage, the difference would be subtracted by the city from the amount paid to the contractor and would be paid to the workers.

(*Labor continued on page 31*)

Who is the wholesaler's salesman?

The man whom we want to talk about here is the individual who contacts you—the buyer. He is either an "outside" salesman who calls on you, or one who waits on you at his salesroom.

He may be the owner of the establishment, who, by choice, likes to serve you personally when you come in; he may be a salesman who takes orders over the counter; or he may be one of many salesmen representing the firm from which you buy.

That salesman who contacts you is perhaps better posted about the products he sells than anyone else in his organization—because his daily operations bring him in closer contact with his customers. This continuous association—rubbing elbows with countless numbers of customers, all striving to satisfy their own particular demands—can't help but create within that salesman a storehouse of valuable knowledge.

Possessed of this wealth of information, the wholesaler's salesman can be—and should be—your "right hand man." Because he "gets around," he knows a great deal about application activities of the many products his customers use. He learns what you like and dislike. And as a consequence, others in his organization lean on the salesman's judgment in selecting products which he thinks would win highest approval from you and the wholesaler's other customers.

In the case of tubing, for instance, nearly all his customers express a preference for Wolverine. Buyers of this product have learned through experience that there *is* a difference in tubing and have recognized in Wolverine the high quality and dependability they want.

WOLVERINE TUBE DIVISION, Calumet & Hecla Consolidated Copper Company, Inc., *Manufacturers of seamless, nonferrous tubing*, 1487 Central Ave., Detroit 9, Mich.

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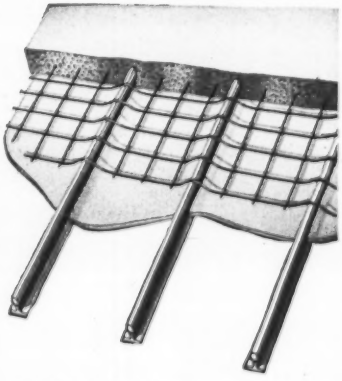
Bees build their hives to "required specifications" and always meet the construction schedule. That's their specialty.

U.S.G. roof deck contractors build SHEETROCK-PYROFILL roof decks to required specifications, too —and building fast is *their* specialty.

They can meet schedules because SHEETROCK-PYROFILL goes on faster—20,000 square feet and more poured per day, after steel is in place. And it sets in less than 30 minutes! They also meet the most exacting specifications because SHEETROCK-PYROFILL is incombustible, lightweight, strong and easy to maintain.

But remember: *only your U.S.G. roof deck contractor can build* SHEETROCK-PYROFILL *roof decks.* He also erects roof decks of USG Precast Metal Edge Gypsum Plank and Short Span Gypsum Tile. For his name, write Industrial Sales Division, United States Gypsum, Chicago 6, Illinois.



Note how SHEETROCK-PYROFILL anchors itself to the steel sub-purlins.

USG UNITED STATES GYPSUM 1902 · 1952 50 YEARS

UNITED STATES GYPSUM

The Greatest Name in Building

Strike settled in Milwaukee

- **California confused**
- **Cleveland again at work**

Except for a few details which must still be ratified, the month-old Milwaukee strike was at an end. The two major employer associations had reached substantial agreement with the building trades.

Construction work in the San Francisco Bay area at a standstill for the last two months because of a four-county AFL carpenters strike was scheduled to get under way again this week.

• **Milwaukee strike ends**—Construction activities at Milwaukee, Wis., the rest of Milwaukee County, and three adjoining counties were getting back in full swing with the end of a month-old strike of five AFL basic building trades unions.

The Building Trades Employers Association, representing the major contractors and building materials firms in the area, has approved the major part of the proposed settlement.

The wage increase approved by the BTEA so far will mean raises for some 7,500 members of the unions ranging from 9½¢ to 11½¢ per hour.

In addition to the wage increases, a 5¢-an-hour welfare fund has also been approved, effective Sept. 1. The wage increase is effective on the first day work is resumed. In some cases this was May 16, since some contractors resumed operations then, before the BTEA had ratified the wage and welfare proposals.

Still to be acted on by the BTEA group is a proposal for a three-year contract, with 5¢-an-hour productivity increases on the 1953 and 1954 anniversary dates of the agreement and a cost-of-living clause calling for a cent an hour for every point rise in the National Cost of Living Index over the first five points of increase. The employer would be entitled to reduce wages a cent an hour for each point drop in the living costs.

The unions have approved all phases of the contracts.

The agreement and the proposed sections still to be acted upon by the BTEA members follows much the same pattern as that reached previously by the Associated Public Works Contractors in ending a strike of their laborers, operating engineers and truck drivers.

• **California carpenters**—Union members in the bay area voted overwhelmingly in favor of terms of a new agreement that offered a 15-cent-an-hour increase to $2.60 plus a 7½-cent contribution to a health and welfare plan, effective in March of next year. The latter concession was the trouble-maker; contractors had agreed early in the strike to the 15 cents, but fought the welfare plan as premature in an industry using largely transient labor.

Carpenters had earlier voted against a proposal which promised only a study of the welfare plan.

Still unsettled was the dispute between contractors and carpenters in the other 42 counties of Northern California, although it was expected that the four-county agreement would serve as a pattern for the larger area.

Millions of dollars worth of construction work was idled there by a strike-shutdown combination—carpenters struck scattered projects in their attempt to reach agreements with individual contractors and contractor associations ordered retaliatory shutdowns throughout the area.

A controversial point in these negotiations is the carpenters demand for a 21-cent-an-hour increase, which would erase a 6-cent differential which has been in effect outside the four-county bay area for a number of years.

Meanwhile in southern California, some contractors and some labor unions reached agreement.

A 19¢-an-hour, across-the-board wage increase has been agreed on by southern California contractors and the AFL teamsters, cement finishers and laborers.

The agreement was reached by the three unions acting jointly in negotiations with Associated General Contractors and Building Contractors Association of Southern California. Separate negotiations with the carpenters, iron workers and operating engineers are still going on. In previous years all six trades negotiated as a unit.

The basic contract between unions and contractors, signed in 1950, doesn't expire until 1954, but it provided for wage reopening this year. In their original demands, the unions asked health and welfare plans, travel time and subsistence, vacation adjustments, and other benefits. The contractors rejected the demands as not being directly concerned with wages.

Effective July 14—if ratified by the membership—the settlement will add 19¢ to current rates ranging from $1.75 to $2.75 for the teamsters, cement finishers and laborers.

• **Cleveland**—A strike of members here of Local 436 teamsters union, which had, after three weeks' duration, halted practically all construction in the Greater Cleveland area, was settled May 23. Employers agreed to a 15¢-per-hour-increase wage package, half of that going to the strikers in a direct wage raise and the balance to go into a welfare fund for the benefit of the union members.

The striking drivers were haulers of practically all building materials other than lumber. Trucks carrying lumber material are under the jurisdiction of another teamsters local union and were not on strike.

15 cents means $400

Industry spokesmen got out their pencils after the Milwaukee strike reached its negotiated settlement and figured out that it meant an increase of $400 in the cost of a $12,000 house.

They estimate that the man-hours involved in the building of such a house is 1,358.

At an average hourly boost of 15 cents this means $203.70 more for on-the-site labor costs.

To this figure the builder must add 10% more for increased old age benefits, compensation insurance and unemployment insurance, making an additional $20.37.

The subcontractors' overhead, profit and labor which comes to about 33⅓% of subcontracting costs, will add $65.

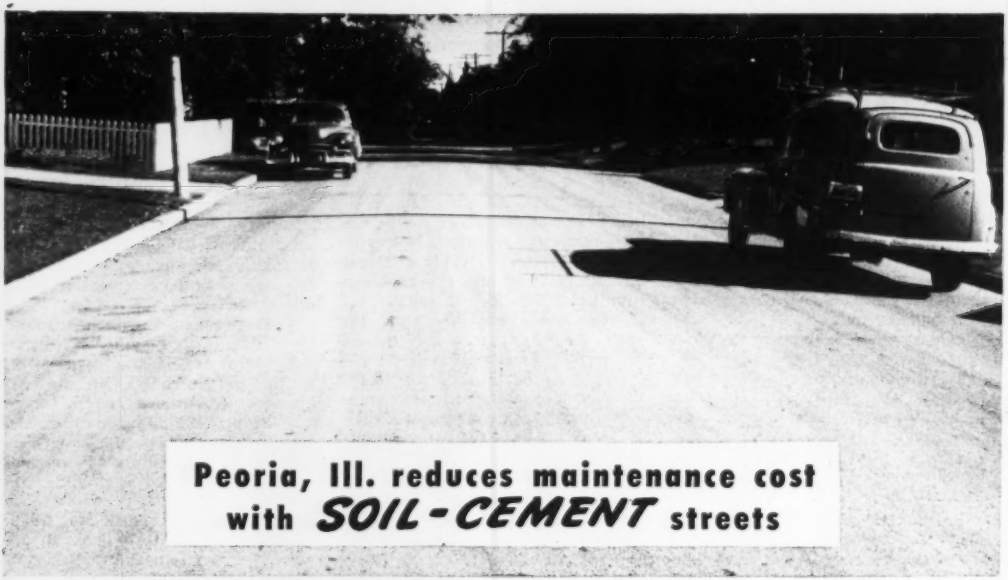
Another $29 must be added for the general contractor or builder who is entitled to 10% on the contract.

An additional $100 to $110 must then be added to cover off-the-site cost increases for labor, such as truck drivers, millwrights and so forth, bringing the increase for the house to about $400.

Secession in the South

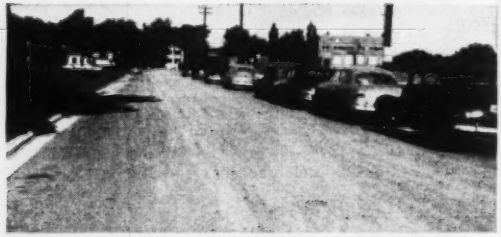
An estimated 500 members of the International Union of Operating Engineers defied threats of fines or loss of their jobs to set up a rival union at Mayfield, Ky. The parent union from which they had seceded is headquartered at Evansville, Ind.

The engineers are acting under a new Kentucky law requiring an international union with at least 100 members in Kentucky to charter a local in the state.



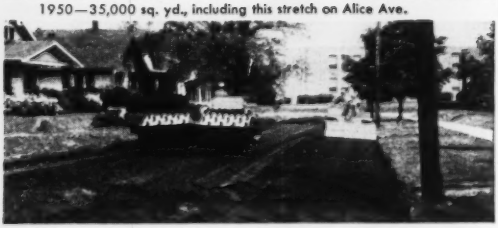
Peoria, Ill. reduces maintenance cost with *SOIL-CEMENT* streets

1948—Peoria Ave. was the first street paved with soil-cement.



1949—Michigan Ave. was in the second year's program.

1950—35,000 sq. yd., including this stretch on Alice Ave.



1951—Paving on W. Gift St., part of 49,000 sq. yd. for year.

Like many cities, Peoria, Ill. spent thousands of dollars annually maintaining granular base residential streets. Yet because of continuing base failures these repairs proved to be temporary.

City officials sought a way to reduce this high cost. They found the answer in soil-cement.*

In 1948 they paved three blocks with soil-cement. Property owners, accustomed to ineffective repairs on dusty, potholed streets, watched operations critically. They liked what they saw.

Says Com. Pub. Wks. Ralph Metts: "We're swamped with petitions from property owners for soil-cement streets. It's difficult to keep up with them—even though property owners pay 75% of the cost. The city's 25% share is for intersections.

"In our long-range program we already have more than 160,000 sq. yd. of soil-cement streets. We plan at least 116,000 sq. yd. more in 1952."

Peoria thus joins scores of cities, counties and states enjoying economical, all-weather service from soil-cement roads and streets. Soil-cement paving is economical because most of the required material is soil already on the site. Construction procedures are fast and so simple that crews quickly master them. And records prove that maintenance costs are extremely low.

For additional information write for free literature, distributed only in the U. S. and Canada.

*Soil-cement pavement consists of a soil-cement base and bituminous surface.

PORTLAND CEMENT ASSOCIATION
DEPT. 6a-17, 33 WEST GRAND AVENUE, CHICAGO 10, ILLINOIS
A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

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CHAPMAN SLUICE GATES, available up to 120" with completely interchangeable parts for every type of installation.

CHAPMAN BEAMED WATERWAY GATE VALVES, 48" diameter of opening and smaller, an exclusive Chapman development to prevent the troubles encountered with double-disc parallel-seated gate valves used under throttling conditions.

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CHAPMAN AUTOMATIC CONE VALVES for check and throttling service, pressure reducing, etc., manufactured in sizes up to 48"

Here's a good thing to remember: When you need the *really* big stuff . . . then you *really* can save money if you "check with CHAPMAN" *first.* For Chapman makes . . . as standards . . . many products that are specials everywhere else. For these and other "BIG ONES" in CHAPMAN's remarkable line of Waterworks Specialties, *write for full information.*

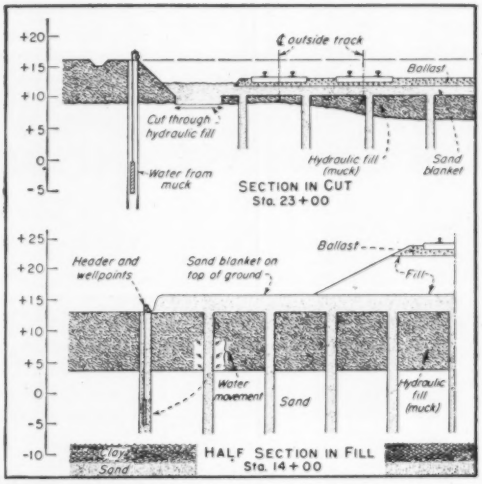
THE CHAPMAN VALVE MFG. CO.

INDIAN ORCHARD, MASSACHUSETTS

Sand drains reversed by wellpoint system

Byron J. Prugh
Asst. Chief Engineer
The Moretrenen Co.
New York, N. Y.

- **Eliminates surcharge earthmoving**
- **Gets machines on the job sooner**
- **Reduces muck-consolidation time**
- **Permits excavation of the muck**



CROSS-SECTIONS in cut (top) and fill (bottom) show sand drain and wellpoint locations. Muck consolidation was a prerequisite to getting a surface machines could work on.

A NEW TWIST in sand-drain technique saved valuable construction time when the Norfolk and Western Ry. Co. decided to enlarge its coal classification yard at Norfolk.

Enlargement was to take place on a saturated muck fill. In recent years such deposits have been consolidated satisfactorily by inserting a system of vertical sand columns, then placing an earth surcharge over the area in order to put pressure on the deposit. Water squeezed from the material flows upward through the sand columns or drains, then outward to the edges of the area.

But at Norfolk surcharging would have taken time that the railroad was anxious to have for operation. Besides, half of the existing muck area was to be excavated after it became stable enough for machines to get on it. If surcharging could be avoided a substantial earthmoving operation—much of it double-handling—also could be avoided.

The answer was to make the muck's entrapped water flow downward through the sand drains—by pumping water from the underlying sand stratum and sucking sand-drained water after it.

A wellpoint system removed the downflowing water.

The principal objective was not to obtain a fully consolidated muck. Rather it was to give the ground enough stability to support construction operations.

In its original state the ground would barely support a man. A wooden pole could be hand-shoved all the way down to native sand. On such ground operating cranes and other construction machinery was out.

• **How it got that way**—The muck was a mixture of blue clay and black mud, with some sand, that had been wasted hydraulically from adjacent land reclamation operations six years previously. Surrounded by sand berms (pushed-up native material) the area was egg-shaped, about 1500 ft long and 800 ft wide. In the six years this material had consolidated to a thickness from 5 to 15 ft.

Naturally slow to drain, the deposit was kept almost saturated by rains.

After soils investigation and completion of the plans, American Dewatering Co. brought sand-drain and wellpoint equipment to the site.

• **Wellpoint installation**—Wellpoints were installed around the perimeter. Two branch lines were installed in some of the wider parts, to cut down the span between wellpoint lines.

Total header length was 4800 ft, serving 710 wellpoints. Pumping initially was done from one location. For a short time it was necessary to install an additional pump at the far end of the area, 1400 ft away. The quantity of water pumped varied from 100 to 700 gpm, depending on the number of wellpoints in operation together with the groundwater level.

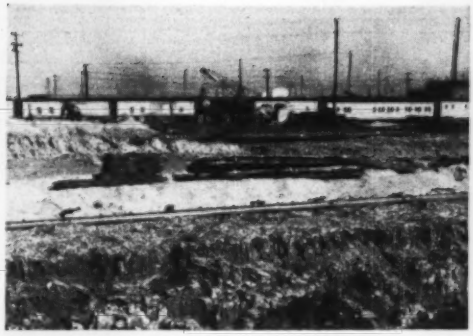
All wellpoints were installed in sand-packed holes, to avoid screen clogging, and to allow the wellpoints to act as additional sand drains. A minimum vacuum of 20 in. of mercury was maintained over the entire system by means of positive displacement vacuum pumps set up in multiple so that only one power unit was needed.

Although the hydraulic fill initially was generally supersaturated with a water content of over 100%, the hydraulic water gradient did not reach the top of the fill at any place. The wellpoint pumping lowered this water table well below all the hydraulic fill.

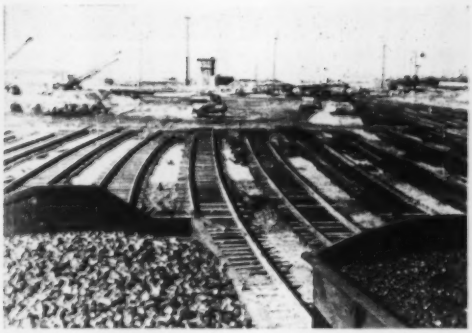
• **Sand pile installation**—Sand drains were installed simultaneously with the

SAND DRAIN DATA

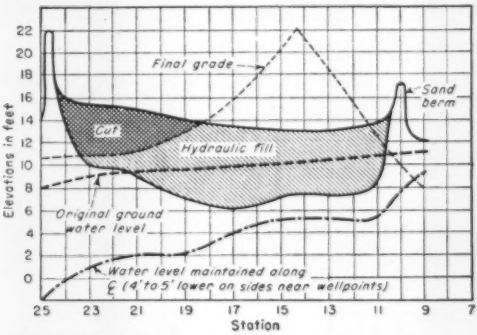
Stations	Area Sf	Pile Diam.	Spacing	Number
10+50 to 17+00	65,000	18"	8.75	850
17+00 to 18+00	11,000	14"	7.50	195
18+00 to 21+50	77,000	14"	10.00	770
21+50 to 24+00	110,000	14"	15.00	485
		16"	13.00	200
Total	263,000			2,500



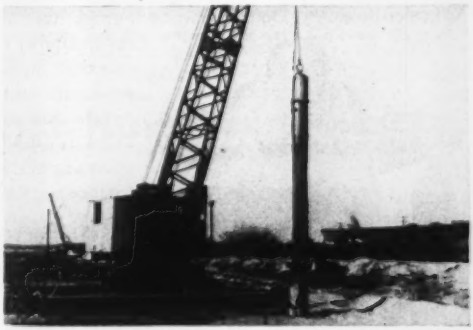
WELLPOINTS lower water table so machines can work on muck. Note how muck shrinks when it dries out (foreground).



TRACKWORK proceeds soon after sand blanket and fill are placed. Draglines at left are completing muck cut.



PROFILE along rail yard centerline shows size of muck deposit, where it was cut, and where hump fill was placed.



SAND DRAIN installation proceeds with aid of casing—and plunger. When muck was too soft, drains were hand placed.

wellpoints. In the yard's "hump" area, where filling was necessary, the usual sand drain procedure was followed. A sand blanket to a depth of 3 ft was placed first. On this fill, a crane operating a special fabricated "sand drain mandrel" and casing, which utilized the inner core as a driving hammer, was able to operate. After driving to the required depth, the core was removed and the casing filled with sand and withdrawn, leaving a sand column in the ground. The core, or mandrel, placed on top of the filter sand in the casing, held the sand in position during withdrawal.

In the cut area, due to the inability of the ground to support any machinery, even with mats, it was necessary to install the sand drains by manual labor. This was done with the aid of a lightweight "bogcutter" 12 in. in diameter. This bogcutter was self-jetted through the fill several feet into the good sands beneath.

Sand was dumped from wheelbarrows into the hole immediately after the bogcutter was withdrawn. The eroding effect of the hydraulic jetting gave a final sand drain of 14 to 15 in. in diameter. The excess hydrostatic head of water in each hole immediately after jetting prevented sluffing of the hydraulic fill before the sand filter was placed.

• **Ground begins to dry**—After a majority of the hand placed drains was installed, the ground became stabilized to such an extent that a small crane was able to operate the bogcutter, although all sand was wheeled by hand. Sand drains extended well into the predrained sand layers below the hydraulic fill. In its consolidated condition the ground had semi-plastic rather than fluid properties.

• **Construction** – Because of bad weather it took nearly a month to place the graded sand required for the working sand blanket in the fill area. Pumping on the fill area ended two months later, when all the fill, the ballast and most of the cut had been completed, with about 10% of the tracks in place.

As the stabilized cut material was removed by dragline, a 3-ft blanket of sand was placed over the excavated area to act as a sub-ballast for the railroad tracks and also as an upper lateral drain for any water subsequently moving up through the sand drains. The blanket also acted as a working area for dump trucks.

As shown by this successfully completed job, sand drains may be utilized in "cut" areas, provided the wellpoints are installed to exert the external forces needed to cause sufficient consolidation or stabilization. This will allow areas that have—(a) soil too soft to support the weight of a bucket type excavator and (b) are not economically situated for dredging—to be stabilized to such an extent that economical excavation and construction are possible.

Wellpoints also greatly shorten the time needed for consolidation of "fill" areas, when those well points used in conjunction with sand drains.

Norfolk & Western Railway Co. was represented by A. B. Stone, chief engineer, and J. F. Newson, Jr., Norfolk division; American Dewatering Co. by Paul Jones, vice-president, and Melvin Huff, field engineer; Moretrench Corp. by Louis Jones and the author.

NOTES

for the engineer's note book

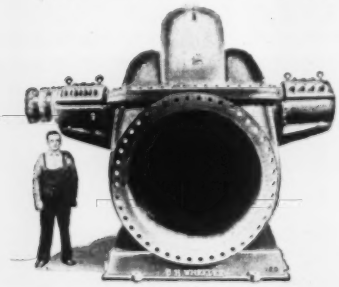
—ON—

Pumping with Economy

FOR WATER WORKS MEN:

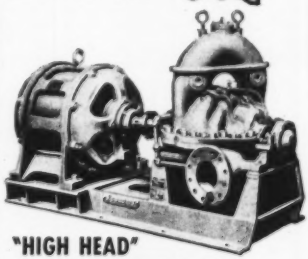
UP TO 90,000 GPM CLEAR WATER CAPACITY

with Wheeler-Economy Horizontally-Split Case Double-Suction Centrifugal Pumps



Wheeler-Economy Double Suction Pumps have records of outstanding dependability in handling clear water or other liquids of low viscosity at moderate pumping heads. These pumps are of the most modern hydraulic design, resulting in high operating efficiencies with little maintenance and long life.

Single stage, double suction, split case design in sizes from 1½″ to 54″. For detailed features, see CATALOG A750.



"HIGH HEAD" IN A COMPACT PUMP

Two Stage Type DMD

Heavy duty, high efficiency with opposed impellers and horizontally split case. Sizes 2″ to 10″ for capacities to 4,000 GPM and heads to 750 feet. Wheeler-Economy DMD Pumps are used in high head water works applications, buildings, hydraulic elevators, boiler feeding, mines, etc. See CATALOG C351.

FOR SEWAGE MEN:

UNSCREENED SEWAGE HANDLED By Wheeler-Economy Non-Clog Centrifugal Pumps

For DRY PIT installations

Wheeler-Economy Horizontal or Vertical Centrifugal Sewage Pumps have clear waterways from 1½″ to 10″. They pump unscreened sewage, miscellaneous pulp or trash in liquid without difficulty. Where sewage is screened, Mixed Flow types are available for higher speed, more economical operation. Sizes to 36″.

"Sentry" Type vertical pump with motor direct connected. For dry pit service, not subject to flooding, and to conserve floor space. CATALOG F249.

Horizontal Type for economical installation, accessibility and to simplify maintenance. CATALOG F447.

Open Shaft Type vertical pump with flexible shafting drive from motor. Motor located at distance above pump to avoid possible flooding of electrical equipment and to conserve pump room floor space. CATALOG F249.

For WET PIT installations:

WHEELER-ECONOMY Sump Pumps

Designed in single or duplex units to elevate drainage or sewage from wet pits, sumps, basements, boiler pits, scale and elevator pits, etc. Sizes from 1½″ to 3″ for drainage free from solids. Sizes 3″ to 14″, non-clog type for unscreened drainage containing solids. Sump cover and control arrangements can be supplied to meet any requirements. CATALOG E748 for General Service. CATALOG E345 for Non-Clog.

See Your Phone Directory or Write Us for Name of Nearest Distributor for ECONOMY PUMPS, Inc.

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WHEELER-ECONOMY PUMPS

ECONOMY PUMPS, INC. · DIVISION OF C. H. WHEELER MANUFACTURING CO.
19TH AND LEHIGH, PHILADELPHIA 32, PA.

ON FIRM SLOPES, paving was laid with a standard highway paver, starting near the bottom of the slope and below the point of wave attack. The toe trench was backfilled later. This paver is operating along a 1-on-3 slope.

Levees protected against hurricanes

HURRICANES always have brought a special threat to people living on the flat and fertile Everglades lying east and south of Lake Okeechobee in Florida. In addition to high wind and driving rain, they have to fear water from the lake. In 1926 and 1928, before the levees that now line 84 miles of the shore were built, 3,000 lives were lost in two storms that drove great waves of water from the lake out over the truck farms lying along its margins.

The hurricanes now direct their fury against the levees, seeking out weak points and cutting great holes that would soon become breaches unless quickly repaired. Hence maintenance of the exposed slopes of the levees is a major problem of the Army Engineers charged with seeing that the levees do not fail.

Considerable savings in future maintenance costs now are anticipated as a result of an asphalt paving program for the lake-side slopes that was begun last year. This paving, which makes possible the use of a steeper slope in the paved areas, has given as a by-product a 4-ft increase in the height of the levee at little extra cost.

Ingenious use of available equipment enabled the construction contractor to effect job cost savings and to speed the work.

• **Levees started in 1930**—Construction of the protective levees was begun in 1930 following the great storms of 1926 and 1928 and was carried forward in succeeding years until there were 16 miles of levees along the north shore and 68 miles along the south and east shores (ENR Aug. 16, 1934, p.195). These levees were built of materials dredged from the lake, chiefly sandy marl, shell, limerock and some free sand, except for 16 miles along the east shore, which are predominantly muck blanketed with rock and marl on the lakeside slopes and crown.

Enlargement of and strengthening of the levees was begun soon after the initial work had been completed as it soon became evident that they did not provide an adequate margin of safety (ENR May 9, 1940, p.636). Those enlarged levees had a lakeside slope of 1 on 6 down to about normal water level. Below that point the slope was flattened to 1 on 20 in the area continuously exposed to wave action.

At that time test sections of different types of paving were installed to determine what types would provide adequate protection against erosion at reasonable cost. Included were thin sheets of asphalt reinforced with cotton fabric or wire mesh, "road-mix" asphalt, and soil-cement. All have stood up well.

In 1949 a hurricane early in the hurricane season did severe damage to some unpaved sections, which made necessary a fast reconstruction job to be certain that a second hurricane did not make an opening through which a storm tide on the lake could sweep out over the truck farms again (ENR Oct. 20, 1949, p.37).

That attack led to a decision to pave the repaired areas to give them added protection against a new attack. Soil-cement paving was adopted because of ease in getting the required materials and equipment (ENR Aug. 24, 1950, p.46).

The new work, recently completed, is a plant-mix sand-asphalt pavement with a compacted thickness of 6 in. It was applied to 4.8 miles of levee along the south shore and 1.6 miles of the east levee.

In the paved area the slope was steepened from 1 on 6 to 1 on 3. Bulldozers cut material from the lower part of the slope and pushed it up to the crown where it was spread in 9-in. layers and compacted.

At the base of the slope draglines deepened the cut to below normal water level in the lake, stockpiling the excavated material between the cut and the lake. This made it possible for the contractor to extend the asphalt pavement to below the point where it could be undercut in a storm. When the paving had been laid the toe trench was refilled.

Raising the levee top was considered desirable in the light of current plans to increase the lake level to store water for irrigation.

Part of the material from the toe trench was hauled to the asphalt plant where it was screened to limit the maximum aggregate size to 1½ in. Asphalt used for the mix was a cutback RC-5 modified to contain not more than 10 percent naptha.

The asphalt content varied from 9

USE OF A SPREADER BOX was necessary on the softer slopes where a paver could not operate successfully.

ROLLING THE SLOPES was done initially with a steel roller filled with water (top). Subsequently a pneumatic-wheeled roller was used.

to 10 percent of the mix. Increasing the content to 11 percent made the mix too rich.

• **Two methods of paving**—Initial paving on the south shore was by a standard asphalt paver, operating longitudinally on the slope. It was fed by dump trucks lowered down the slope by a winch cable from a tractor on the levee crown.

The paver laid 10-ft strips, commencing at the toe and working progressively toward the crown. Pavement was laid in one course, with material spread to proper depth to give a finished pavement 6 in. thick after compaction.

Although operation of a paver of this type on such a steep slope is unusual, entirely satisfactory results were obtained as long as subgrade was firm. About a mile was paved in this manner. When the subgrade became too sandy, causing the lower side of the paver to cut into the subgrade, it was transferred to crown work.

The contractor found that operations of the paver on this steep slope caused some mechanical difficulties, due, he believes, to the fact that the lubrication system was designed for operation on more level ground.

On very sandy sections a spreader box was used, being pulled up the slope by the same winch that delivered asphalt to the paver.

The pavement was rolled with a smooth steel drum, using the front wheel of a standard roller filled with water to give it a weight of 6 tons. As soon as the surface had cured sufficiently, usually 24 to 48 hours, two passes were made with the roller.

The contractor found that this use of a steel roller was advantageous for two reasons: it protected the asphalt mixture against damage from rain by partially sealing the surface, and it facilitated more uniform curing of the full depth of the layer. This made for increased uniformity in density of the finished pavement.

Two to four days after the initial rolling the pavement was further compacted by two passes of a 9-wheel, pneumatic-tired, 6-ton, traffic roller. Two complete coverages by this roller produced the required degree of compaction.

After compaction, a seal coat of RC-2 was applied at the rate of 0.30 gal per sq yd on the south-shore levee, and 0.45 gal per sq yd on the east-shore levee.

Contractor for this work was Smith Engineering and Construction Co. of Pensacola, Fla., with M. F. Gonzales as general superintendent. Work was under the supervision of A. R. Broadfoot, resident engineer for the Corps of Engineers, Jacksonville District.

Drive at pug mill of Gladding McBean & Co. Safety guard removed for photographic purposes

The Problem:

The drive at the pug mill at the Gladding McBean & Company brick plant, Pittsburg, California, is so vital to their production it cannot be out of service for any length of time. It must operate under dusty conditions which induce slippage in ordinary belts. It must be able to take very severe pulsating loads.

The Solution:

With the installation of rugged BWH Bull Dog V-Belts the problems and difficulties were completely overcome.

* * *

Do you have a drive or V-Belt problem? Call us for Bull Dog V-Belts and a space saving, dependable, trouble-free installation.

Another Quality Product of

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Let's make "Sad Shad" a "Glad Shad"
CLEAN UP THE RARITAN RIVER
"SAD SHAD"
HERE'S WHAT YOU CAN DO!
"GLAD SHAD"
You can let your local officials know that the Raritan Valley Trunk Sewer System makes sense to your health, your pocketbook, and your pride in your community. These public officials want to serve your best interests and need only your encouragement to proceed — write or tell them of your wishes.

If you want to get backing for a sewage disposal project, here's . . .

How to rally taxpayers behind pollution control

PUBLIC RELATIONS is the mortar that cemented together the taxpayer support needed by the Middlesex County Sewerage Authority for the Raritan trunk sewer project in New Jersey, which is designed to clean up serious pollution of the Raritan River.

The authority had a sound project. It had an equitable system for charging a fair share of cost against each user of the project. But it took a third ingredient. That third ingredient was support of the people of the valley.

As reported in last week's issue, the Middlesex County Sewerage Authority has had trouble signing up all participants it had hoped to get into the project. The fact that public feeling has run high against those failing to sign is a testimonial to the public relations job that has been done.

Educating the taxpayer as to the seriousness of water pollution, the methods used for its abatement and the good sense of clean-up projects has been emphasized in these pages before (see ENR Feb. 14, p 126, May 29, p 112). Middlesex County Sewerage Authority has succeeded in such an educational effort.

The big lesson to be learned from MCSA's success is this: It is not enough to put out an engineering report justifying your project, its cost, its practicality. Only engineers will read and appreciate it.

It is John Q. Public who must be convinced that still more money than he is already paying in taxes must be spent on facilities vital to him. He must believe he is to be charged a fair price for a worthwhile service economically provided.

• **For instance**—The Raritan River has been polluted for 30 years; efforts to clean it up date back 20 years. MCSA is not yet two years old. Here is how

IT'S SO THICK YOU CAN SKATE ON IT.
POLLUTED RARITAN
$2,100,000 PER YEAR
$1,400,000 PER YEAR
TRUNK SEWER COST PER YEAR
CONTINUE LOCAL TREATMENT PLANTS
KEEP POLLUTION — AND GO BROKE!
HAPPY DAYS ARE HERE AGAIN!
INDUSTRY PAYS 65%
TOWNS PAY 35%

JOHN Q. PUBLIC CAN UNDERSTAND THIS, and more important, it is something he will take the time to read.

it got its story across to the people in such a short time:

"Sad Shad" was dreamed up by Authority Secretary W. H. Baumer to appear in cartoons of three daily and 13 weekly newspapers in the area. The 300,000 people in the valley were made pollution-control conscious by some 10,000 column-inches of stories and editorials that made the local and nearby metropolitan papers during intensive days of the public relations campaign. A sound movie done in color was produced and shown to some 500 audiences in eight weeks (later shown on commercial screens of the valley to another 40,000 people). Pamphlets were circulated, and commission members mounted the speaker's platform wherever they could find it.

They had the facts, the engineering data. But the important thing is that they translated these to the language of the street when speaking to the man on the street.

John Q. is oblivious to BOD, coliforms and chlorine demand. Talk to him in terms of health, swimming, oysters and dollars for best results. That's what MCSA did, as evidenced in the following quoted from one of their promotion pieces:

Q. How does existing pollution affect your pocketbook?

A. If you work or own a business in the Raritan Valley, the river pollution affects your earning capacity. It has already curtailed industrial and residential growth, jeopardizing jobs and business throughout the area.

Q. Would the trunk sewer system restore shell-fishing and the recreational advantage of Raritan Bay and its beaches?

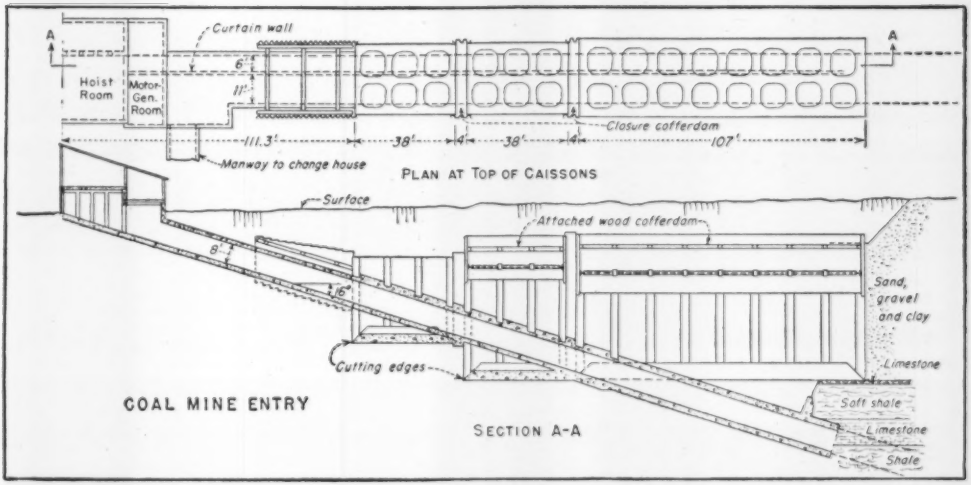
A. The State Department of Health is specific in saying: "The once thriving shellfish industry in Raritan Bay has almost vanished. The recreational value of Raritan Bay has depreciated greatly. Both can be restored if all parties concerned will cooperate to the fullest extent."

This approach did the trick. The facts were put across. Municipal officials as well as industry have felt the pressure of public sentiment.

New High School in Western New York—This recently completed two-story structure, the Williamsville Junior-Senior High School, Williamsville, N. Y., has facilities for 1000 students. The building is 325 ft long and 350 ft deep, and has 30 classrooms, an auditorium, gymnasium, swimming pool, library, industrial arts shop, laboratories, music rooms and cafeteria. Its attractive exterior of red brick and gray limestone covers a 600-ton steel framework of Bethlehem Structural Shapes.

BETHLEHEM STEEL

General Contractor: The John W. Cowper Co., Inc.; *Architect:* Duane Lyman and Associates; *Consulting Engineer:* T. H. McKaig; *Steel Fabricator and Erector:* Buffalo Structural Steel Corp.



Concrete caissons build sloped mine entry as . . . .

Construction lore triumphs in the coal field

W. G. Huysman
Field Superintendent
Contracting Division
Dravo Corporation
Pittsburgh, Pa.

IT SEEMS NATURAL that a coal operator will do just about all of his underground work with his own miners.

But one owner recently came to the Dravo Corporation with a problem whose solution took construction technique.

He wanted to drive a sloped mine entry through 65 ft of soft, wet sand, gravel and clay.

Dravo did the job with the aid of the versatile open concrete caisson, which frequently is found on bridge-pier work. Other applications include dam cutoff walls, pump wells, shafts, waterfront structures and even whole buildings, but this is the first known use of the caisson to build a sloped mine entry. Three caissons were sunk in line. Their walls were breached and the entry was built through them in the dry.

The mine, owned by Peabody Coal Co., is near Pawnee, Ill. Principal object of the sloped entry is to permit belt-conveyor hoisting of the mined coal.

To reach the coal seam at a depth of 350 ft, the slope, pitched 16 deg. from the horizontal, is 1280 ft long. The opening, rectangular in shape, is a minimum of 8 ft high and 18 ft wide. In addition to the 48-in. belt conveyor in a 6-ft wide compartment, there is a single-track, 11-ft wide haulageway for movement of materials and personnel.

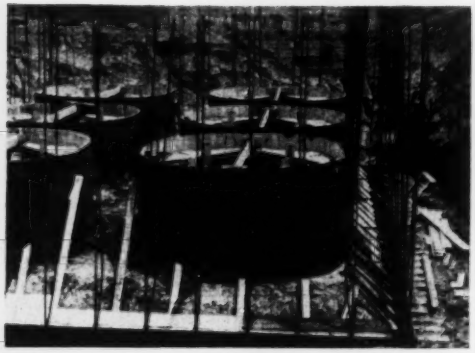
• **Lower operation cost**—The advantages of eliminating the conventional shaft—with its skips, guides, cables, and consequent high maintenance and operating costs—were considered sufficient to justify the extra initial cost of a slope. The new slope was driven upward from the coal seam as well as downward from the surface. Access to underground work was through a 15-ft ventilation shaft.

Feasibility of this project depended on successful construction of the slope from the surface through the soft wet overburden, which overlies limestone. Dravo proposed the caisson method of building the slope through this soft ground and far enough into sound rock to permit use of ordinary mining methods for additional driving of the entry. Peabody Coal Co. awarded Dravo the contract to build this portion of the slope and also to sink the 350-ft ventilation and underground construction access shaft.

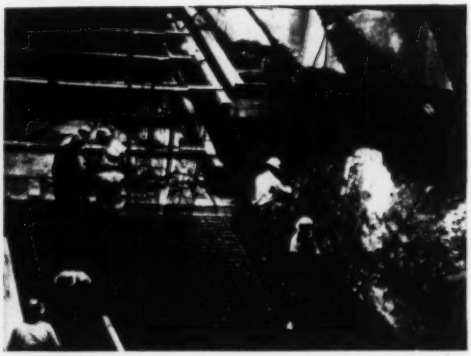
• **First caisson goes to rock**—The first caisson, 107 ft long and 28 ft wide, was sunk until its cutting edge had uniform bearing upon rock. After inspecting the underlying rock from a test pit excavated beneath the caisson, a satisfactory location was selected for making the transition from open rock cut into tunnel construction. Working from the end wall of the caisson downward to this point in short sections, excavation was made and the concrete floors, walls, and roof of the slope poured. Steel beams supported the rock overhead as several feet of tunnel were driven and lined with concrete.

With the location of the slope thus established, work on the other two caissons, each 38 ft long and 26 ft wide, was started. These were formed so the slope passed through them near their bottoms and, consequently, each was sunk to a predetermined elevation. To prevent any future settlement, a concrete seal 3 ft thick was placed in the work chamber of each of these caissons.

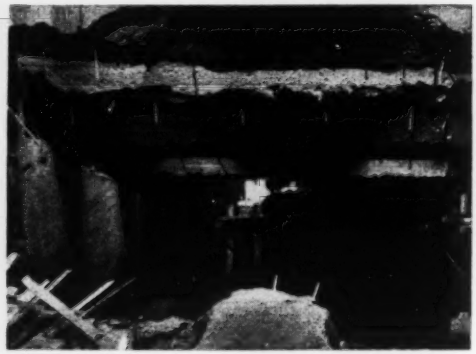
• **Sheetpiles seal caisson joints**—The three caissons were separated by 4-ft spaces and, after all sinking was completed, steel sheet piles of arch-web section were driven between the corners of adjacent caissons, thus closing off the ends of the 4 ft-wide openings. The small cofferdams thereby formed were excavated to a depth of 3 ft below the slope floor, the sheet piles being braced as excavation progressed. Short beams spanning recesses were left in the caissons. Holes slightly larger than the slope were blasted through the end walls of the caissons and the concrete construction of the slope within the first caisson was extended through both smaller caissons and closure cofferdams. From the last caisson to the surface, a short section was built within steel sheets and the



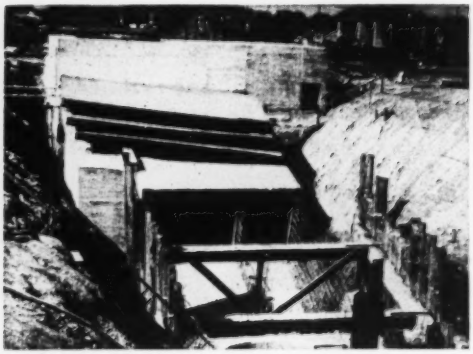
CONCRETE CAISSON construction begins in open cut. Dredge-well forms and steel cutting-edges are in place.



AT ROCK SURFACE, 65 ft below ground, best location for slope's break-through is found and floor construction begins.



GAPING HOLES, blasted in caisson walls, make way for entry floor, wall and roof construction.



TRANSITION between smallest caisson and surface house takes place in braced sheetpile trench.

remainder in open cut. Incorporated in the portal section is a man-trip loading platform and foundations for the main hoist and motor-generator set.

• **Advantages**—Benefits attributable to this method of construction are: (1) Ground at the surface was disturbed little beyond the width of the slopes; nearby buildings were founded on simple spread footings and were being built while caisson sinking was still in progress. (2) The exact break-under location did not need to be determined until satisfactory rock was located within the test pit. (3) Strata of wet, running sand encountered during the sinking were cut off as the caissons dropped and caused no further trouble. (4) The large caisson, firmly seated upon rock, protects the transition section of the slope from earth pressures which might otherwise be excessive.

• **How caissons were built**—The design and method of building the concrete caissons was generally similar for the three. Each was rectangular in plan with the outside surfaces made as smooth and true as practicable. Steel cutting edges were provided at the bottom, flush with the outside surfaces. The lower 6 ft of the outside walls were wedge-shaped, the inside faces sloping upward and inward from the cutting edge, to enclose the 6-ft-high work chamber.

Vertical holes 10 ft in dia were left in the caissons. Through these holes, 16 in the large and six in each of the smaller caissons, material was excavated from beneath the caissons by 1¼-cubic-yard clamshell buckets. Forms were designed and fabricated for use on all caissons with only minor alterations.

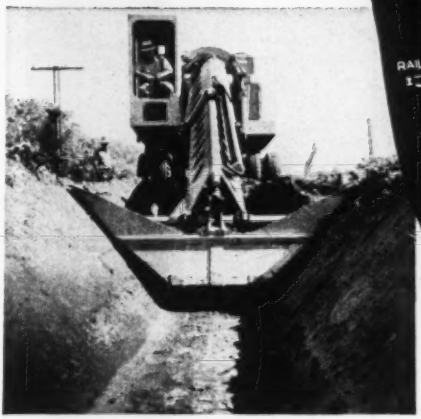
The caissons were formed in a 15-ft-deep open cut in order to reduce the height required for each caisson and to eliminate unnecessary sinking. The depth of this open cut was limited by the stability of its banks and the reach of the relatively heavy cranes working along the top of banks.

The height of the concrete portions of each caisson was determined by an economical balance between the volume of concrete, area of formed surfaces, and the weight required to make the caisson sink. This was determined to be 35 ft for the center and 30 ft for the end caissons. For both the large and middle caissons, height in addition to the concrete section was provided to each by an attached cofferdam. This was installed when sinking had progressed until the top of the concrete was at ground level.

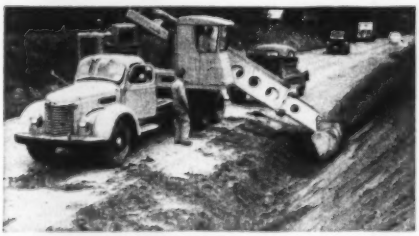
Each cofferdam consisted of steel beam and timber bracing within walls of steel sheetpiling and was of the same outside dimensions as its caisson. These cofferdams were removed after the slope was constructed within the caissons and as backfilling of the caissons progressed.

Just as soon as this soft ground portion of the slope was accepted by Peabody, the company's crews started driving downward toward a meeting with those advancing upward.

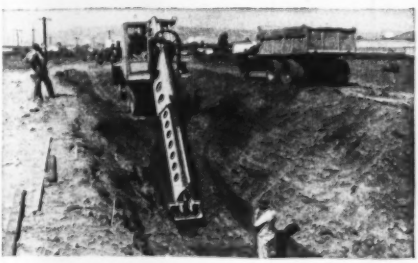
digging ditches TO BLUEPRINT SPECIFICATIONS



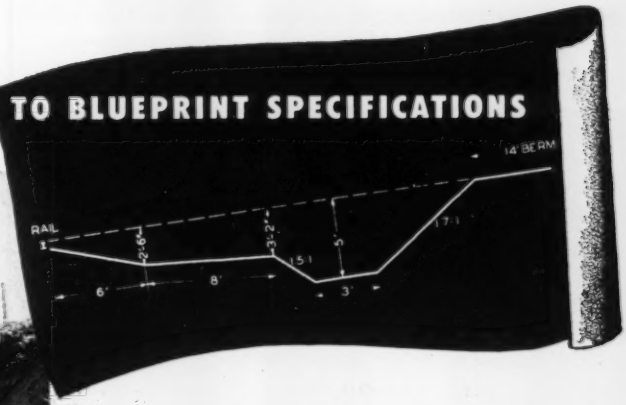
Using special bucket built by owner, Gradall digs and trims irrigation ditch, eliminating hand finishing.



Along busy highway, Gradall accurately cleans slope, digs ditch, and loads spoil, all in one operation.



Gradall digs two-level ditch — tilting arm-action boom permits chamfering slope to desired angle.



NO MATTER WHAT TYPE DITCH IT IS, the Gradall will dig it with the accuracy of hand labor—but at much less cost!

Gradall has proved itself a time and labor saver on many different types of ditching jobs—following the special contours of ditches along railroad right-of-ways, along highways, in extensive irrigation projects—anywhere precision work is required.

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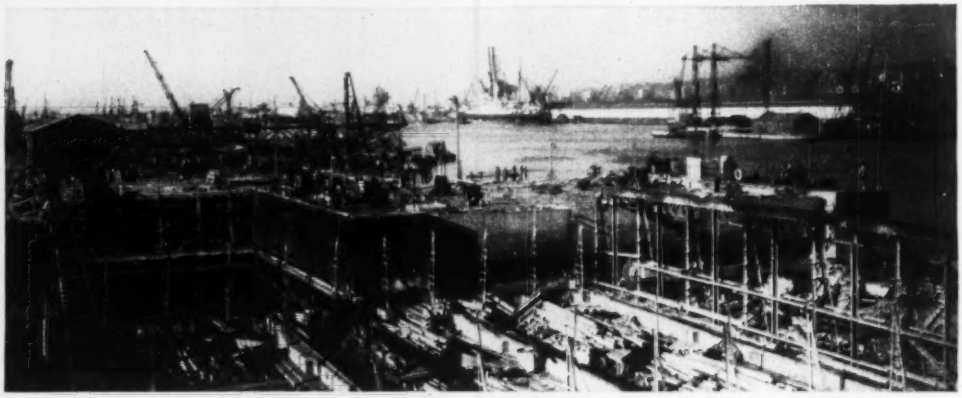


BIGGEST YET—A 1,300-ton prestressed concrete wharf unit leaves the casting yard on a 1,700-ton prestressed concrete floating drydock (with steel buoyancy tanks at the ends) as . . .

Prestressing sets new records on Le Havre harbor job

One of the most remarkable prestressed concrete jobs yet tackled, involving the largest prestressed units yet built, is under way in the port of Le Havre, France. Here a 4,000 ft long war-destroyed wharf is being replaced by a structure whose deck is made up of 48 precast, prestressed units each 82 ft square, 11½ ft deep and weighing 1,300 tons. And to give the job even greater dimension, the units are moved from the casting yard to the wharf site on a floating drydock of prestressed concrete, built in the form of a closed box section, 83x110 x17 ft, and with the record-breaking weight of 1,700 tons.

The new wharf will replace the Saigon and La Plata quays in the port's Bellot Basin. Since these old quays were of retaining wall type, they collapsed from unbalanced hydrostatic pressure when the Germans emptied the basin in their barbor-wrecking activities. As a consequence the new construction is rendered immune to this kind of damage by the use of an open-type design in which deck units are carried on a series of cylindrical caissons 5 ft in diam. The caissons are arranged in three rows 30 ft apart parallel to the shoreline, and spaced about 27 ft center to center in each row.

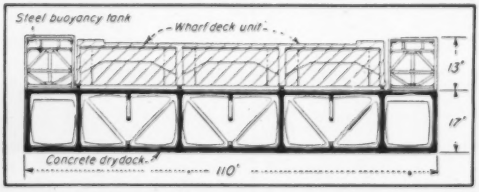
The precast deck units are floated into place over these caissons and attached to each one by two high tension steel cables anchored in the tops of the caissons and running up through the wharf deck. The structure, including the caissons, is designed to resist safely a horizontal force (as from a ship) of 75 tons.

• **Foundations**—The caissons were constructed (see ENR June 8, 1950, p. 44) by the patented Benoto method in which a steel pipe is forced into the harbor bottom by an oscillating, screwing motion imparted by a special machine. Simultaneously the material inside the pipe is removed by a grab bucket. The caissons were sunk to hardpan at depths varying from 75 to 150 ft and then filled in stages with aggregate into which a "colloidal" mortar was pumped.

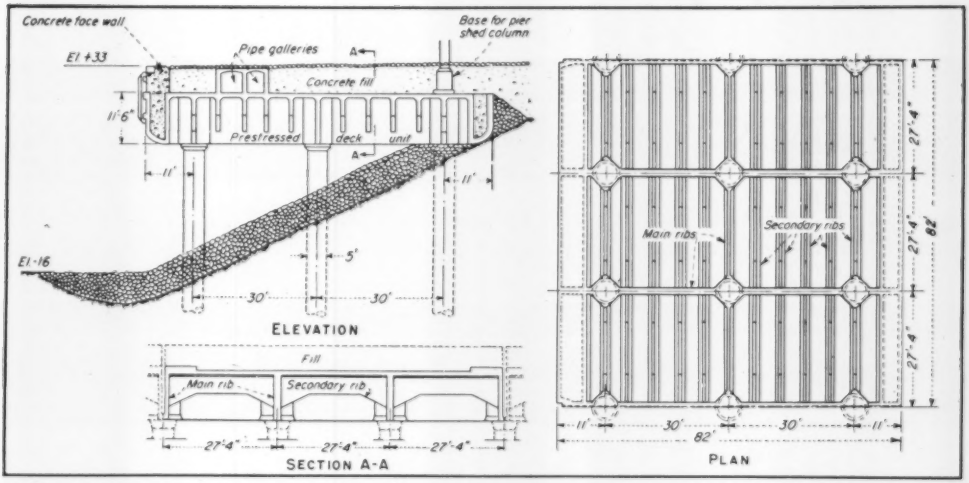
This colloidal mortar, an emulsion called Colgrout, is made in a two-stage mixing operation. Water and cement are first mixed together in an agitator turning at 1,500 rpm. This mixture is then forced into another 1,500 rpm agitator where the sand is added. The resulting mixture is claimed to be a stable emulsion or colloid in which all particles are thoroughly dispersed. From the final agitator the Colgrout goes to a supply tank from which it is pumped to the caissons. The concrete formed by injecting Colgrout into aggregates goes by the name of Colcrete.

These caisson foundations were topped out with about 5 ft of conventional concrete, after which the steel cylinders were pulled.

• **Casting the deck units**—In order to meet a construction schedule that called for the completion of between 300 and 400 ft of wharf a month, the contractor set up a casting yard in



PRESTRESSED CONCRETE DRYDOCK carrying a completed deck unit (left) is of cellular construction (right) and weighs 1,700 tons. Steel buoyancy tanks increase its flotation capacity.



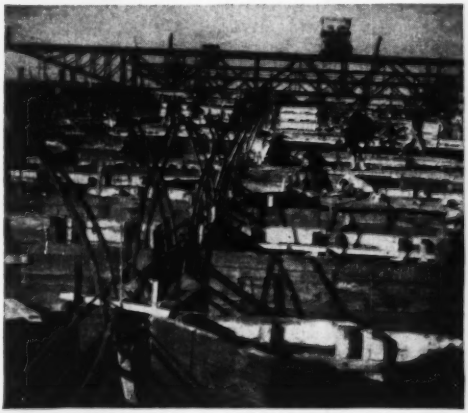
LE HAVRE WHARF is built of huge precast, prestressed deck units installed on rows of 5-ft dia caissons. Deck units 82 ft square are tied together by prestressing cables and covered with a concrete fill.

which four deck units could be built simultaneously. Two casting bays were placed either side of a small pool dredged into the bank of the basin. The units were then built on launching ways leading to this pool into which the floating drydock for transporting the units could be brought. Two gantry cranes spanning 100 ft across the casting yard handled the forms, and reinforcing cables, and brought the concrete in buckets from a central mixing plant.

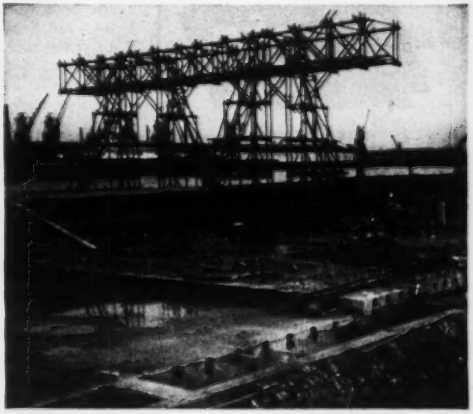
Each of the prestressed precast deck units is composed of a 7-in. slab stiffened on the underside with a grillage of four transverse and three longitudinal ribs, each 11 ft 6 in. deep and 1 ft 7½ in. thick. The intersections of these main ribs occur at the pier locations. Further stiffening of the deck slab is furnished by a series of secondary longitudinal ribs, shallower than the main members and connected thereto by haunched ends.

Each deck unit required 32,500 sq ft of formwork, 725 cu yd of prestressed concrete, 12 tons of steel in the cables (each of which contains 18 wires of 0.2 in. diam), 5 tons of other steel and 600 anchorage cones for the prestressed cables. In order to speed up the work the secondary stiffening ribs were manufactured at another plant and then set in between the main ribs at the main casting yard. The cables were tensioned by Freyssinet jacks.

• **Transported by drydock**—The success of the entire operation was early seen to depend on the method used to get the deck units into the water and float them to the wharf location. Consideration was given to flooding the casting yard and also to pulling the units into the basin on a ship railway, but both were discarded as too expen-



PRESTRESSING CABLES AND FORMS being assembled for one of the wharf deck units. Note gantry crane that spans casting yard and is used for moving forms and distributing the concrete buckets.



COMPLETING THE WHARF by joining the units with prestressed cables and building a face wall and pipe gallery. Scaffolding supports men who are working on face wall. (All ENR photos.)

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(3) CASTING YARD permits building four wharf units at a time, two on either side of a launching pool. A completed unit is shown in the pool on the drydock transporter that moves it to the wharf site, off picture at left.

sive and slow. A floating drydock, to which the units could be transferred, was decided to be the best solution, and was made practicable from a cost standpoint by the fact that the contractor felt he could find a use for it on later jobs.

Floated into the pool at the casting yard, the drydock was sunk onto some pile support that brought rails on its deck to the same elevation as the rails in the casting yard on which the deck units rested. Rolled onto the drydock the deck units were then carried out into the basin and down near the wharf site. Here water was let into the drydock, sinking it until the deck unit was floated free to be pulled into position over the already completed caissons of the wharf. Air trapped under the deck unit usually kept it floating high enough. However, each unit was equipped with an air compressor to supply more air if required—and with vents for evacuating the air in seating the unit on top of the caissons.

The floating drydock was made in prestressed concrete because metal was not available and because the use of ordinary reinforced concrete would have made its members too large and its weight too great. As built, the top and bottom slabs are 4½ in. thick and the crosswalls from 3 to 8 in. thick. A total of 920 cu yd of concrete and 28 tons of prestressing cables (each containing twelve 0.2 in. diam wires) was required. Form work surface aggregated 54,000 sq ft.

Designed as a hollow box in which the cells were available as ballast tanks, the drydock was built on piles at the edge of the basin. When it was complete, the piles were broken by dynamite charges at the same time that tugs pulled the drydock forward to launch it in the water.

The drydock was then equipped with two steel ballast tanks at either end to increase its flotation. The necessary pumps to raise and lower it were also installed. Empty, the barge has a draft of 6½ ft and loaded with a deck unit, it draws 11½ ft. When it is discharging a deck unit the barge is sunk to a draft of nearly 27 ft. The draft of the deck unit when floating is 7.25 ft.

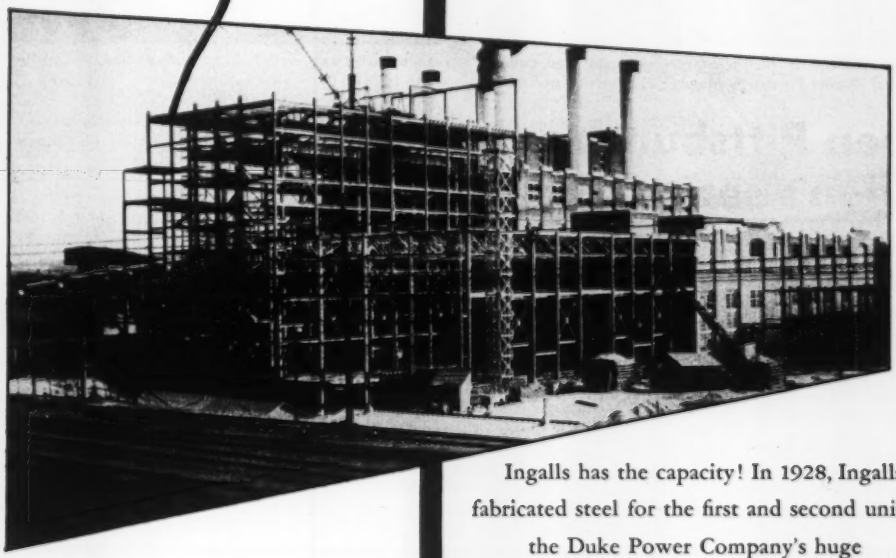
After the deck units are in place they are joined to one another by tensioned cables, a face wall of concrete is constructed the full length, a service gallery is built and the entire wharf covered with lean concrete fill and paved.

The job is being done by Enterprises Campenon-Bernard of Paris, for whom the wharf and drydock prestressed designs were developed by Freyssinet & Labelle, consulting engineers whose firm also goes by the name of Societe Technique pour l'Utilization de la Precontraiate (STUP).

Le Havre is the second seaport of France. It is on the estuary of the Seine 143 miles from Paris. In the first world war Britain and the United States used it as a base. In the second world war the city, and especially the docks, suffered severe bombing raids, as it was a frequent target of the Allied air force while under German occupation.

INGALLS

Fabricated by INGALLS



Ingalls has the capacity! In 1928, Ingalls fabricated steel for the first and second units of the Duke Power Company's huge Riverbend steam station. In 1938 Ingalls fabricated unit three. And again, in 1952 Ingalls was called upon to fabricate the steel for Riverbend's units four and five.

The INGALLS Iron Works Company

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CITY-IN-ITSELF, is the description given to this terminal building at Greater Pittsburgh Airport. The recently opened airport is located 15 mi northwest of Pittsburgh and is second-in-size only to Idlewild (New York International) on Long Island.

Open Pittsburgh's airport, nation's second in size

The second largest commercial airport in the country started operations 15 mi northwest of Pittsburgh, Pa., May 31, after nearly 12 years of wrangling and construction delays.

The $33-million Greater Pittsburgh Airport has several miles of runways and taxiways, and a gleaming black granite-fronted terminal building which boasts a hotel, night club, theater, bank, post office, scores of shops and everything else it needs to make the terminal a complete city by itself.

It will be second in size only to the Idlewild field on Long Island. It will be two and one-half times as large as New York's LaGuardia Field. The new inland port has provision for a customs office in preparation for the day when international flights begin and end in Pittsburgh.

• **Finance**—Allegheny County, which surrounds Pittsburgh, took on the biggest part of the financial burden, issuing some $21 million in bonds to finance construction of the 1,600-acre field and $10-million terminal.

County officials are sure that revenue from the concessions will return a profit sufficient to pay off the debt. Some people disagree.

In 1950, Parsons, Brinckerhoff, Hall and Macdonald, New York consulting engineers, reported that an annual deficit of between $77,000 and $623,000 could be expected.

An 81-man staff will be paid $200,000 a year for operating the building. Clifford Ball, a Pittsburgh aviation pioneer, is staff director.

• **Engineering details**—The seven-story terminal has finger-shaped passenger loading docks which can handle more than 30 planes at a time.

One feature of the new field is a 360-ft paved loading platform shaped like a horse shoe. This apron, bounded on one side by the loading docks, has a sightseers' deck, parking places for 5,000 autos and a 250-ft underpass under the loading platform.

• **Easily reached**—Hailed as one of the most easily reached metropolitan airports, the Greater Pittsburgh Airport is located on an extension of the Lincoln Parkway, a limited access, four-lane express route which speeds east-west traffic through Pittsburgh.

The parkway is still under construction. When it is finished, travelers will be able to make the trip from downtown Pittsburgh to the airport in an easy 20 minutes.

The new airport's location has other definite advantages. It is in a sparsely settled section in the suburban townships of Moon and Findlay and the only town of any size is Coraopolis, four miles away. The area around the airport consists largely of open land.

• **Water**—The water supply problem was a tough one for the airport's engineering staff. Eight mi of 8 and 10 in. lines were laid to Coraopolis to tap a source of supply. The lines feed into 460,000 gal water towers.

Other major construction involved storm drainage, sanitary sewers and disposal systems, underground fueling, air conditioning systems, hangars and field lighting.

All utilities for planes are underground. Power, air conditioning and gasoline are available for planes by simply lifting one of the covers which lead to the underground storage facilities.

• **Zoning**—The airport area will have rigid zoning restrictions which are causing some hard feelings.

Part of Pittsburgh itself and several suburbs are affected. As outlined by the Civil Aeronautics Administration, the zoning ordinance places tight restrictions on a 10-mi area at either end of the east-west runway but will not change existing restrictions on other runways.

Restricted are transformer stations which might disrupt radio and radar operations, high voltage power lines, smoke-producing plants, rifle ranges, private landing fields, glaring lights like those on golf driving ranges, and television and radio towers.

• **History**—The history of the Greater

(*Continued on page 52*)

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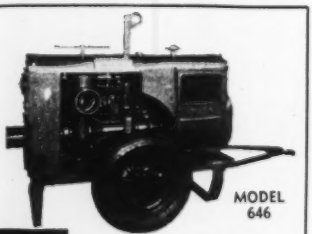

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MUNICIPAL

Pittsburgh Airport goes back to 1941 when the Army felt a larger airport for the defense important Pittsburgh area was a vital necessity.

A great debate started when the county was offered federal money to help build a new airport which the county would have to maintain. Some officials thought that they would be left with a "field of weeds" when the war emergency was over.

But the old airport was outmoded, too small, and its runways were taking a terrible beating from big planes. Its maintenance costs were rising sharply. So the county took the plunge and started laying out money by spending $275,000 for the land.

More space for same money by combining civic needs

For more than two years, Nashville, Tenn., has been on the verge of authorizing a civic auditorium to cost $5 million.

A referendum at that time authorized the expenditure of bonds in that amount for the construction of such an auditorium.

The hitch came when members of the Auditorium Commission were unable to agree on a site.

About the same time, the State Legislature authorized the city to issue $1 million in bonds for a combined police and fire station.

Last month, however, a proposal was made that the auditorium be combined with the city police and fire station for a total expenditure of $6 million.

City Council immediately approved the plan, the structure to be built on city property near the present public square.

Tentative plans for the $6-million building are being drawn by Joseph H. Holman, auditorium architect.

D. L. Lansden, secretary of the Auditorium Commission, said the commission does not contemplate holding another meeting until city officials have decided on their requirements and Holman can present rough plans for consideration.

In view of the commission's unanimous agreement to explore possibilities of the combined building at the Market House site, on the eastern edge of the proposed $20-million Capitol Hill redevelopment project and the west end of the proposed $4-million Victory Memorial Bridge across the Cumberland River, Lansden predicted an early go-ahead for actual planning for the structure.

"They can have more space for their money in a combined building."

Cities plan spending for much improvement

Philadelphia and St. Louis have planned civic improvements which together add up to $104 million.

In Philadelphia the municipal leaders first plan to sample public opinion about spending the $25- to $50 million for improvements.

In St. Louis, the Mayor asked the Board of Aldermen to go to work on the program which had been announced a year ago.

• **Philadelphia**—Mayor Joseph S. Clark, Jr., plans to begin a sampling of public opinion to determine whether residents are willing to "pay the freight" for an immediate $25,000,000 to $50,000,000 municipal improvement expansion program.

He made known his program at a meeting of the city's Democratic councilmen who comprise an overwhelming majority of the council.

Clark would like to undertake the following projects if the public is willing to foot the bill:

Expansion of the city's airport. Developing the municipal water system. Carrying out a comprehensive highway and street development plan. Establishing an efficient incinerator system. Eliminating dumps. Expanding the city's playground network. Completing plans for building up the Philadelphia General Hospital as a modern institution. Increasing salaries of municipal employees, particularly members of the police and fire bureau.

Clark will outline the program in a series of radio broadcasts and telecasts and will ask whether the taxpayers are willing to go along. He said the Democratic Party, when it took over in January, was handed outmoded and run-down services.

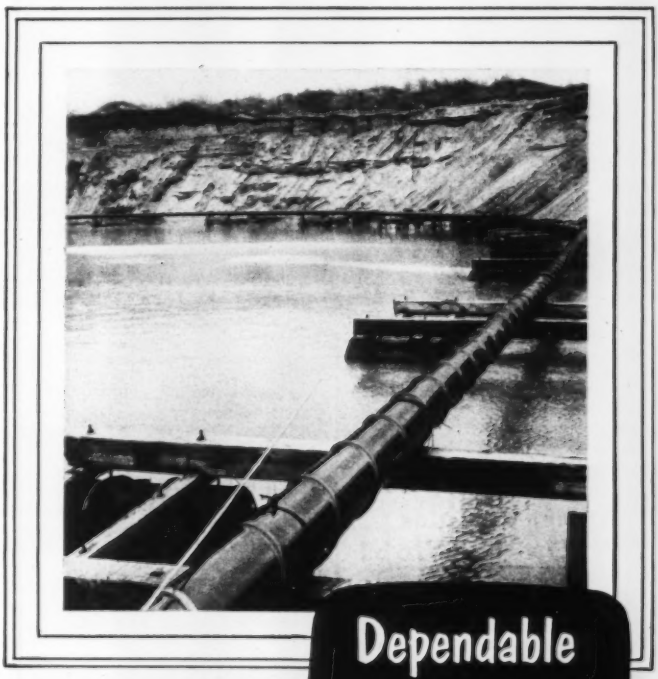
Many of the building projects listed by the Mayor are on the City Planning Commission's program. Clark's plan would have the work get underway as quickly as possible.

• **St. Louis**—Mayor Darst told the Board of Aldermen that the time had come for them to get to work on the $64-million public improvement program he outlined last December.

The improvement program will have to be paid for by the issuing of municipal bonds. He said the work could not all be started during the current fiscal year, but insisted that initial steps should be taken and some of the projects gotten under way.

The largest of the bond projects scheduled is a $20 million expenditure for acquisition of expressway rights of way.

Familiar Scenes
IN DREDGING OPERATIONS



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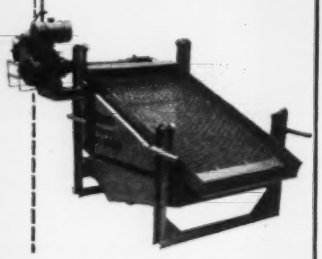

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SEA SWALLOWS LAND in coast battering storms like this in California.

City fights sea as beach disappears

When the California State Division of Housing recommended demolition of five multiple-unit dwellings and extensive repairs to 14 others along the waterfront in Redondo Beach, a city of 25,000 adjacent to Los Angeles, it rubbed more salt into an old but open wound.

If the recommendations are carried out (they're being fought by owners and city), the five buildings will be only the latest to go. Already a 700-ft-wide, seven-block-long stretch of beach has disappeared, along with the same length of the "Strand" (a concrete walk), and three blocks of residences and shops. No one has toted up the damage to municipal and private property, but Mayor J. Russell Shea says it runs "into hundreds of thousands."

Ocean currents and coastal topography have always made the area a target for high waves during storms, and as far back as 1915 homes were destroyed by battering waters. But the serious trouble seems to stem from Redondo's ambition to have a small-boat harbor.

In 1935 the city began agitating for federal help in constructing such a harbor. Redondo is a reasonable spot for one—20 mi northerly from Los Angeles Harbor, and 11¼ mi southerly from Santa Monica Harbor. The city might reasonably expect a thriving business from pleasure craft and small fishing boats.

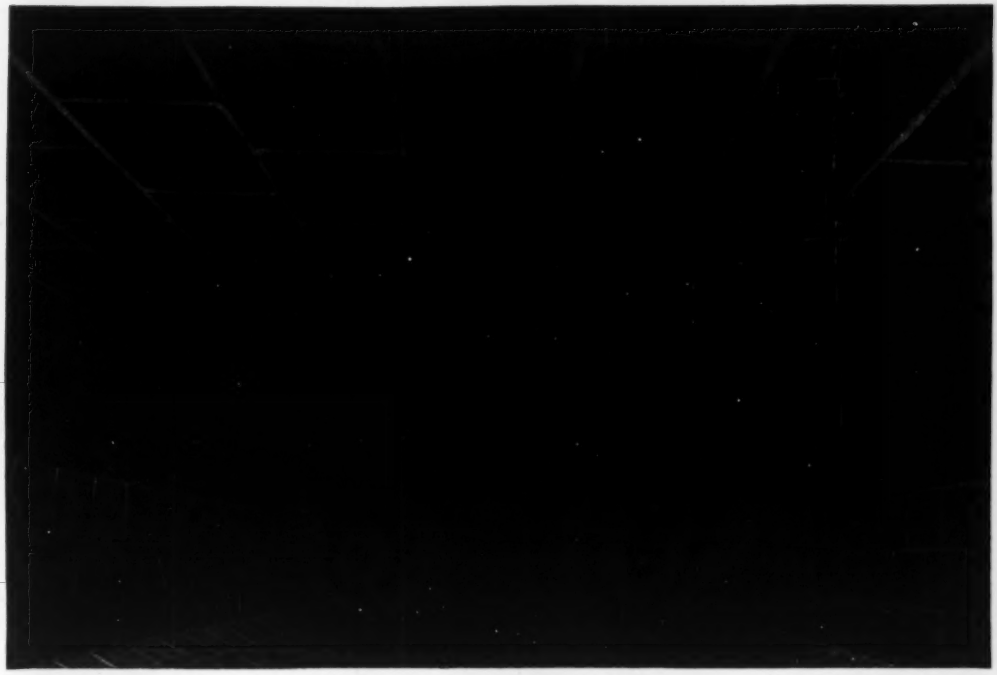
The Board of Engineers for Rivers and Harbors made a study of the area and in 1937 said no. Redondo went ahead anyway, and in '38-'39, with $300,000 of its own money (a bond issue) and $245,000 from WPA, built a 1,500-ft stone breakwater as a starter.

• **Mistakes**—It turned out to be a rash move. No federal funds have appeared, although the Board of Rivers and Harbors reconsidered and in 1950 approved a $4,832,000 project incorporating the breakwater, and Rep. Cecil R. King has been putting up a valiant battle for a Congressional appropriation.

In the meantime the breakwater is nothing but trouble. It has brought no revenue because of its inadequacies: it gives no protection from the south, inadequate protection from the north and seaward, and its 20 acres of anchorage has been greatly reduced by sand deposits. What's much worse, to all appearances it is largely responsible for the destruction wrought in the seven blocks south of it.

In the days before the breakwater, the buildings along this part of the Strand were protected by the 700-ft-wide beach. Sand was eroded by wave action but replenished by new deposits, and the beach was relatively stable. After construction of the breakwater, the sand was no longer replenished, and within 2 yr the beach was a thing of the past. The theory offered by county and state engineers who have studied the problem is that replenishment came mainly in littoral drift from the north and that the breakwater has prevented this sand from reaching the beaches immediately south of it. Other theorists contend that the breakwater has somehow changed the ocean currents.

(*Continued on page 56*)



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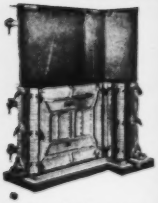

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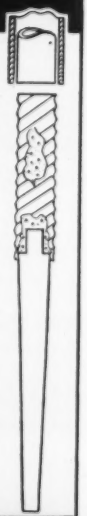

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MUNICIPAL

Redondo officials are reluctant to have all the blame put on the breakwater, which might leave the city open to suits by property owners. They point out that the area has always received special attention from storms. But the fact remains that the major trouble dates from 1939, when the breakwater was constructed, and not before.

Something in the neighborhood of $250,000 in state, county, municipal and private funds has been spent since 1944 to build a seawall where the Strand used to be. Made of concrete core rock and granite armor, it requires constant repair, since it was built on sand and is steadily sinking. In places it has reached bedrock, but other parts are dropping as much as 4 or 5 ft in 6 months and much of it is now beyond repair.

Even when it stabilizes, the seawall will be no solution to the main problem. It helps to stop further erosion but does little to protect the remaining buildings from being pounded by the waves, and nothing to restore valuable water frontage.

• **Action**—To meet the problem, Mayor Shea is pushing action on two fronts:

The Redondo City Council under his leadership is trying to interest state and county in assisting construction of two 200-ft groins extending straight out from the shore in the affected area. Theory is that the groins would stop further loss of sand and that sand fill might be put between them to create a beach.

Engineering opinion is not unanimous on the practicality of this scheme, and in any case, it would be a make-do expedient. The only permanent solution (except, perhaps, removal of the breakwater) appears to be completion of the harbor, which would close the area in and give it complete protection. Mayor Shea is urging the city to build up its own nest egg to be ready when federal funds are available.

When municipal elections are held next April he hopes the voters will approve for the purpose a yearly 15¢ assessment for every $100 property evaluation. He figures that such an assessment would build up a $200,000 fund in 3 or 4 years and that Redondo would be ready to use it to underwrite a bond issue or private loan for the $1,750,000 that would be its share in the harbor construction necessary to save its beach and business from destruction.

(*Municipal continued on page 58*)

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Prosecution asked in pollution cases

The problem of water pollution stretched the patience of the Pennsylvania State Sanitary Water Board to the breaking point, when it asked prosecution of 37 communities.

In Washington State, the Pollution Control Commission adopted a "wait-and-see" policy on Seattle's disposal plans.

• **Pennsylvania**—Extensions of time to comply with orders of the Sanitary Water Board of the Pennsylvania Department of Health for the construction of sewage treatment works under the clean streams program will not be granted to any municipality in the Susquehanna River basin, which includes the Juniata River and its tributaries.

This decision was announced last week by the board which at the same time referred to the Deputy Attorney General for appropriate action the cases of 37 of those municipalities.

Those referred to the legal department are in two categories—the first consisting of 11 communities which have not prepared plans for sewage treatment works in accordance with previous orders of the board and the second list comprising 26 municipalities which have prepared plans and which have been approved but have failed to take further action to comply with the board's construction order.

The board will review the cases of 35 other municipalities in the Susquehanna basin which are in various stages of progress and the attitude of the board will be determined by the good faith shown by those municipalities in proceeding to build treatment works. Included in the latter categories are those which have formed municipal authorities and those which are planning to advertise for bids for bond issues or for construction.

Since the issuance of the orders by the board, 21 municipalities in the Susquehanna basin have awarded contracts for the construction of treatment works, are in the process of having them built or the plants have been constructed and placed in operation.

The dates set in the orders by the board were June 1, this year, for the municipalities along the Susquehanna River and its tributaries and May 1, this year, for some of the communities along the Juniata River and its tributaries. There are some other communities on the Juniata River tributaries which have a Jan. 1, 1953 date for construction.

Such communities as Harrisburg, Wilkes-Barre, Nanticoke, Shenandoah, Pittston, Kingston and Edwardsville, are included in the orders.

Deputy Attorney General Robert J. Trace said he would consult with Attorney General Robert E. Woodside to discuss the course of legal action to be taken against the municipalities.

• **Seattle**—A $25-million program for modernization of the Seattle, Wash., sewage disposal has been presented by City Engineer R. W. Finke to Mayor William F. Devin and the City Council but faces some obstacles before it can be adopted.

The program calls for continued use of Puget Sound as a disposal area, through four primary treatment plants. Here is where opposition may develop—from Mayor-elect Allan Pomeroy, who took office June 2, and from the State Pollution Control Commission.

Sewage disposal became an issue in the election when property owners in the area of one of the four treatment plants drummed up a great deal of opposition to Mayor Devin and the city's present program whose form has been apparent in recent years. Pomeroy promised to "clean up the Sound" by the construction of disposal plants, presumably providing secondary treatment, although neglecting to suggest any method of financing such an expensive program.

The State Pollution Control Commission originally sought to have the city construct disposal plants but presently has adopted a "wait-and-see" policy on the city's program.

The Finke program has been based on the findings of Dr. Alex Wolman of Johns Hopkins, retained as a consultant several years ago. Dr. Wolman found that the salt waters of Puget Sound are deep enough and swift enough to treat the city's sewage for many years to come, provided that the sewage be diluted and the outfalls be extended to deep water.

Whether the program be adopted or not, Finke may not be around to see it more than started, as his term of office expires Jan. 1, 1953 and Pomeroy is not likely to reappoint him.

The Finke program, prepared over a four-year program, calls for the construction of four treatment plants, 29 pumping plants and approximately eight miles of interceptor and replacement sewers over a 10-year period. Work already is under way on several small projects under the program.

(*Municipal continued on page 60*)

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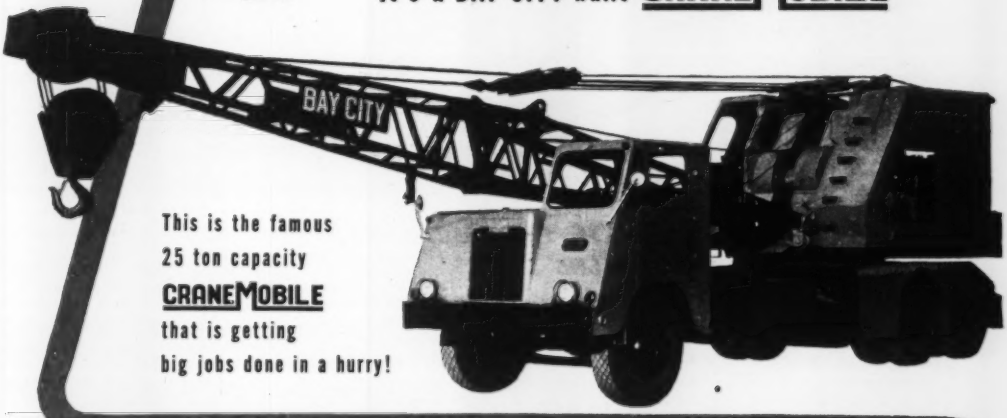

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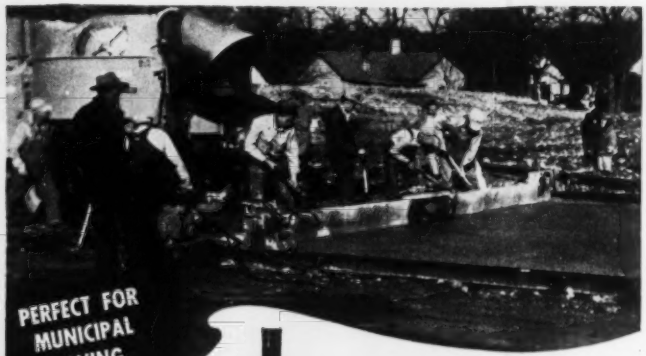

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JACKSON VIBRATORS, Inc.
LUDINGTON, MICHIGAN

SEE OUR CATALOG IN GILLETTES HEAVY CONSTRUCTION PRE-FILED CATALOGS

MUNICIPAL

Water rates raised fluoridation blamed

Fluoridation was advanced as a reason for higher water rates in an Ohio Sanitation District, while in Connecticut the first step to permitting fluoridation was taken.

• **Authorizing Bill**—The State Legislative Council in Hartford, Conn., last month went on record as favoring a bill giving local water works authority to provide fluoridated water as a means of fighting tooth decay.

Proposed legislation drawn up by the council for introduction in the 1953 General Assembly would, if passed, remove any doubt as to statutory authority to treat water supplied in this fashion.

The Hartford Metropolitan District Commission, which supplies water to Hartford and seven surrounding towns, recently raised the question as to its legal right to add fluorides. The district in a resolution indicated it needed "clear legislative authority" on the matter.

It is expected the bill will receive rough treatment in the legislature.

• **Water rates boosted**—A two-judge court of jurisdiction over the affairs of Mahoning Valley sanitation district recently approved the district's request for an 11% increase for Youngstown, Niles and McDonald, Ohio.

The decision was made after Luther T. Fawcett, chief engineer and secretary of the sanitary district, took the stand for more than an hour to explain reasons for asking the rate increase.

In explaining about increased labor and material costs, Fawcett also announced that MVSD probably will not begin fluoridation of water until early fall. It had been hoped to begin the process this July.

Fluoridation is one of the causes for higher costs and need for more money by MVSD.

Fawcett explained that fluoridation will add $1.50 per mg to the district's expenses. Over and above this cost of the chemical, the district will have to spend $18,000 to $20,000 for fluoridation equipment and storage space.

A 10% hike for employees has been found necessary by the board of directors in order to keep workers. Many have quit for higher paying jobs.

There has been a rise in other chemical costs, principally because of increased freight rates, Fawcett said.

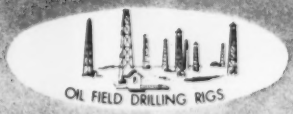
Testimony brought out the fact that funds are necessary to rebuild and add to existing settling basis.

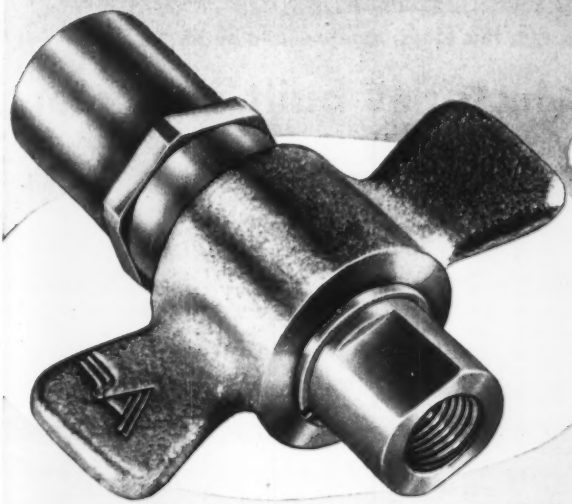
AEROQUIP SELF-SEALING COUPLINGS

AND FLEXIBLE HOSE LINES

Speed Maintenance

WHEREVER FLUID-CARRYING LINES MUST BE DISCONNECTED AND RECONNECTED





Speed maintenance, *speed* repair operations and *speed* interchanging of accessories joined by fluid-carrying lines with Aeroquip Self-Sealing Couplings. Lines may be separated in a few seconds without loss of fluid. No air enters the system upon reconnection. There is no need to drain or prime the fluid system. One Self-Sealing Coupling takes the place of two shut-off valves.

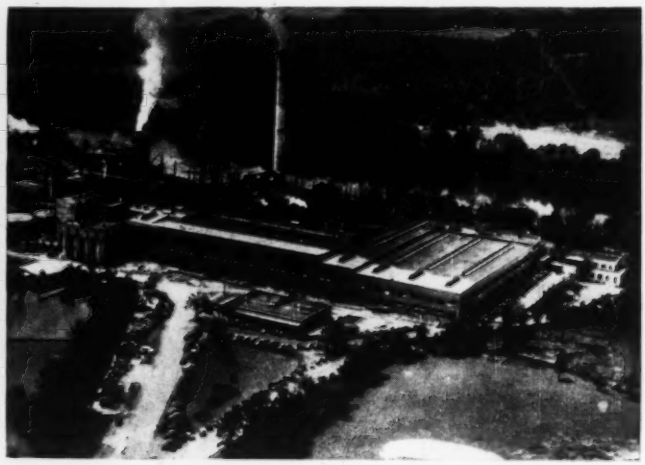
Aeroquip

REG. TRADE MARK

AEROQUIP CORPORATION, JACKSON, MICHIGAN

SALES OFFICES: BURBANK, CALIF. • DAYTON, OHIO • HAGERSTOWN, MD. • HIGH POINT, N. C. • MIAMI SPRINGS, FLA. MINNEAPOLIS, MINN. • PORTLAND, ORE. • WICHITA, KAN. • TORONTO, CANADA

AEROQUIP PRODUCTS ARE FULLY PROTECTED BY PATENTS IN U.S.A. AND ABROAD



The man, O. F. Sieder, and . . . the jobs, like this plant, together add up to . . .

. . . $66 million of factories built in a year

Under 88 separate contract operations, the H. K. Ferguson Co., of Cleveland, Ohio, completed $66 million worth of business in 1951. These figures were revealed at the stockholders meeting of its parent company, Morrison-Knudsen Co., Inc., at Boise, Idaho, held June 3.

- Who directs this large volume of building work?
- What kind of an organization is required?
- How does H. K. Ferguson operate?
- What about the future of integrated companies?

To get the answers to these questions, ENGINEERING NEWS RECORD went to the executive vice-president and general director of the company—Otto F. Sieder.

Here are the answers he gave us, plus some about himself that we had to get elsewhere.

I. The Director

Otto F. Sieder, directs the operations of this, one of the largest firms specializing in the design and construction of industrial facilities. As operating head of the firm, which employs 700 engineers exclusive of field personnel, his area of activity is literally the world.

Process-industries have been the prime factor in industrial building this year. The dollar volume of contract awards in this field has led all other types of industrial building.

Prior to joining Ferguson in 1945, Sieder had built a reputation on the ability to think in large terms when it came to engineering projects.

Called to Washington in 1940, he was appointed Chief of the Industrial Construction Division in the Office of the Chief of Engineers and worked in this capacity until the plants needed to assure victory in World War II were completed and in operation.

While with the War Department, Sieder supervised design and construction of all munitions plants, depots and experimental stations built for the Ordnance Department and the Chemical Warfare Service. The work involved the erection of about 300 separate plants costing almost $4 billion. For his contribution to this gigantic program, Sieder was among the first to receive the War Department exceptional civilian award.

• **Career notes**—Following his graduation from Lafayette College with a degree in civil engineering—he is chairman of his 50th class reunion this year—he went to work for Purdy & Henderson. One of the first projects he worked on was New York's famous Flatiron Building.

Later Sieder went to work for American Bridge Co., and still later as a designer of bridges and industrial plants for Westinghouse, Church, Kerr & Co.

In 1908, he went to South America for Milliken Bros., New York Engineers. Headquartering in Buenos Aires, he built some of the first tall buildings south of the Equator.

Returning from South America, he spent almost 30 years as vice president and chief engineer of Levering & Garrigues, a New York Steel fabricating firm subsequently purchased by Bethlehem Steel Co.

("They couldn't beat us, so they bought us," Sieder said.)

During this period the company designed and erected, under his supervision, such structures as the Roxy Theater, the Bank of Manhattan Building (40 Wall Street), the Chanin Building and hundreds of others.

While still with the War Department, Sieder headed the board that decided to retain many defense plants on a standby basis. This ultimately resulted in the savings of millions of dollars in the present emergency.

Active as he is in business, Sieder has devoted considerable energy to civic, fraternal and church affairs.

II. The Organization

The H. K. Ferguson Co., is an organization of specialists in design-

(*Continued on page 64*)

ANOTHER NEW 4 WHEEL DRIVE PAYLOADER®

MODEL HR

FEATURING . . .

- 4-wheel drive
- Rear-wheel Power Steering
- Four Forward Speeds
- Four Higher Reverse Speeds
- Hydraulic Bucket Control
- Hydraulic Down-pressure
- Automatic Tip-back Bucket

Write for literature on the 4-wheel drive 1 cu. yd. Model HR or 1 ½ cu. yd. Model HM "PAYLOADER." There are also five sizes of two-wheel drive "PAYLOADERS" — 1 ¼ yd., ¾ yd., ½ yd., 15 cu. ft., 12 cu. ft.

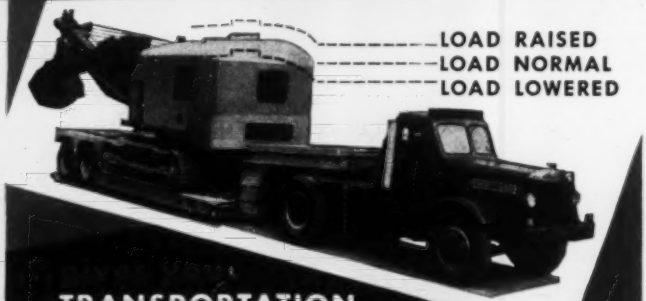
Here's the tremendous tractive ability, the mobility and the versatility of the famous Model HM "PAYLOADER" applied to this new 1 cu. yd. tractor shovel. Here's the same low, compact design . . . the same power-boosted rear wheel steering that means maximum maneuverability. And — once again — here's more than *thirty years of tractor-shovel experience* built into a single machine.

The Model HR conquers sand, snow and mud . . . works on pavement without injuring the surface . . . travels fast from job to job. It can dig tough materials, load big trucks, bulldoze, strip, excavate, stockpile, spread, lift, push and do drawbar work. There's a choice of 60 hp Diesel or 54 hp gasoline engine . . . extra attachments include bulldozer, crane hook, fork lift and snow plows.

If you want to know how much usefulness, mobility and all-around job capacity can be packed into a one-cu. yd. tractor-shovel, you have to see a Model HR "PAYLOADER" in action. Contact your Hough Distributor today. The Frank G. Hough Co., 772 Sunnyside Ave., Libertyville, Illinois.

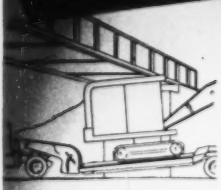
PAYLOADER®

Only ROGERS TYPE "TPG" Power Lift
DETACHABLE GOOSENECK

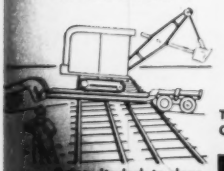


TRANSPORTATION

LOAD MANIPULATION



Stoops to clear low overhead obstructions.



Lowers its deck to clear [illegible] overhead crossings.

The unique deck raising and lowering feature of this Rogers trailer makes load manipulation a distinct advantage under many hauling conditions.

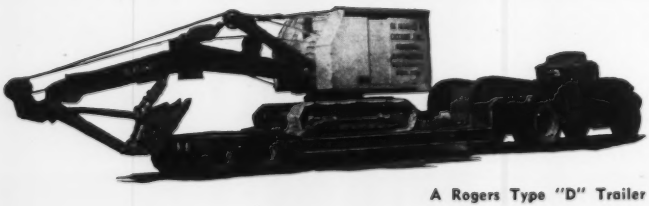
Low bridge or high road bed obstacles are easily overcome. Deck is raised or lowered to alter overall height of load for overhead clearance. Raising deck clears high road beds.

Write for literature and full particulars or call your nearest agent.

THE ROGERS Power Lift DETACHABLE GOOSENECK CAN BE OBTAINED ON ANY STANDARD ROGERS DROP DECK TRAILER

EXPERIENCE builds 'em — PERFORMANCE sells 'em

ALBION, PENNA.



A Rogers Type "D" Trailer

"There are many advantages to integration, for the client . . ."

ing, constructing and equiping laboratories, processing plants, industrial power plants and light and heavy industrial plants.

"We are an integrated company," says Sieder, "Doing 80% of the work with our own forces."

"We are in back of the job. There is no way we can pass the buck, even if we wanted to,55 he continued.

The focus of the Ferguson operation is the engineering department. This department has 700 mechanical, chemical, electrical, structural and architectural engineers.

In addition, the company has a fully integrated staff of construction and equipment installation specialists, thus enabling the organization to live up to a company slogan "from flow sheet to finished plant—we design, build and equip with one contract, one organization, one responsibility.

The company, has, in addition to its main office, district offices in New York, Houston, Chicago and Los Angeles, and full-scale engineering offices at Cincinnati, and Frederick, Md.

"We don't claim to be the largest in our field," Sieder says. "Our objective is to have an organization sufficiently large to make available to our clients the diversified engineering and construction specialists required in today's advanced technology. At the same time, we want to consider ourselves small enough to render an individual, personalized service to each of our clients. We're doing our best to strike a happy balance."

III. Operations

The ability to get things done fast has long been a principal selling point for the H. K. Ferguson Co.

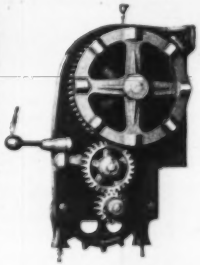
(*Continued on page 66*)

Rolling Steel DOORS

Manually, Mechanically, or Power Operated

MAHON STANDARD POWER OPERATOR 920-P

Mahon Release Device and Governor on the Automatic Closing Mechanism of a Mahon Rolling Steel Fire Door. Fusible links release the mechanism in case of fire and the door closes automatically.



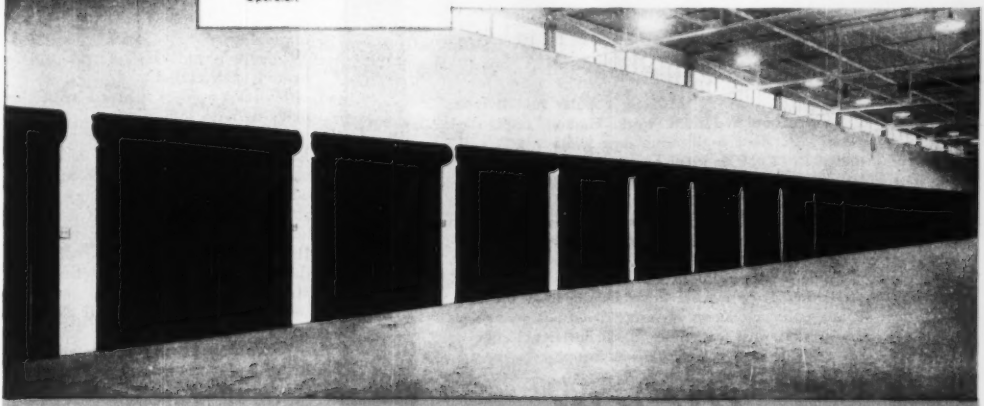
Mahon Release Device for Chain-Gear Operator on Mahon Mechanically Operated Rolling Steel Fire Doors. Fusing of the Fusible Link, which releases the Automatic Closing Mechanism, simultaneously disengages the Chain-Gear Operator.

In warehouses and other buildings with high ceiling clearance where maximum usable floor area is the prime consideration, Rolling Steel Doors occupy a minimum of space . . . their vertical roll-up action occupies no usable space inside or outside the opening, or above the lintel level. No other type of door offers such space economy. In the particular installation below, Mahon Underwriters' Labeled, Automatic Closing Rolling Steel Doors were employed in openings in a dividing wall between an inclosed loading dock and the warehouse proper. In case of fire, any doors in the open position will close automatically. Rolling Steel Doors are permanent—their all-metal construction assures you maximum protection and a lifetime of trouble-free service. Whether you buy standard doors or Underwriters' Labeled type for fire protection, you will find that you get a greater dollar value in Mahon Rolling Steel Doors . . . a study of Mahon Specifications covering materials, application of protective coating, operating mechanisms, and other extra-value items, will convince you. See Sweet's Files for complete information —including Specifications, or write for Catalog No. G-52.

THE R. C. MAHON COMPANY

Detroit 34, Michigan • Chicago 4, Illinois • Representatives in all Principal Cities

Manufacturers of Rolling Steel Doors, Grilles, and Automatic Closing Underwriters' Labeled Rolling Steel Doors and Fire Shutters; Insulated Metal Walls and Wall Panels; Steel Deck for Roofs, Partitions, and Permanent Concrete Floor Forms.



ROLLING STEEL DOORS, SHUTTERS AND GRILLES TO MEET EVERY REQUIREMENT

Twenty-Four Mahon Automatic Underwriters' Labeled Doors installed in a new Warehouse for Food Warehouses, Inc., Detroit, Mich. Two Mahon Power Operated Rolling Steel Doors 17'-0" x 22'-0" are installed in railroad openings in this same building. Louis G. Redstone, Architect, Campbell Construction Company, General Contractors.

MAHON

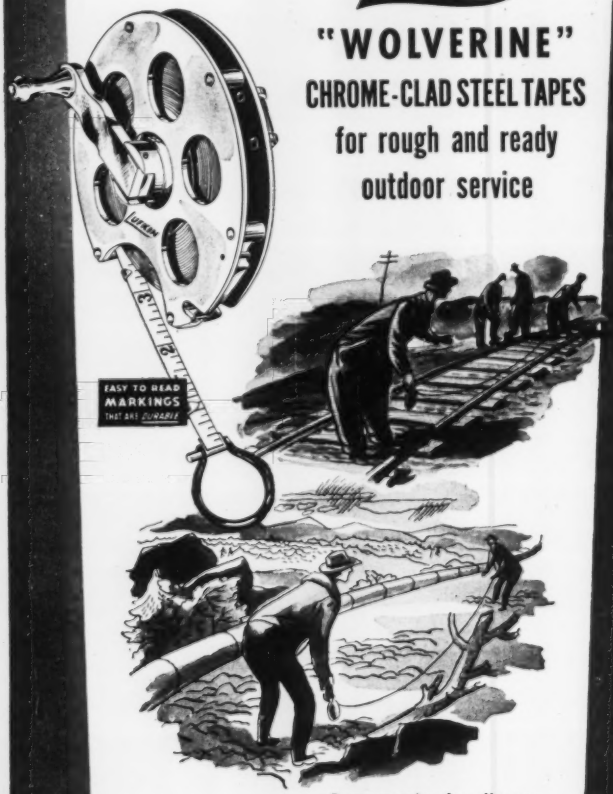
Engineers prefer

LUFKIN

"WOLVERINE"

CHROME-CLAD STEEL TAPES

for rough and ready outdoor service



Long popular for all types of construction and mine work. Highest grade steel line is standard engineering tape width (¼") and thickness (.012" standard or .015" heavyweight) — durable for hard use, yet flexible. Famous Lufkin Chrome-Clad finish will not chip, crack, or peel. Jet black markings are easy-to-read on the chrome white background — and remain readable although subjected to long, hard wear. "Instantaneous" readings. Side of reel perforated for easier drying and cleaning. Long extra-leverage handle locks the line at any point. Engineers' style improved patented finger rings. Marked feet, 10ths, 100ths; or feet, inches, and 8ths; in 50, 100, and 200 foot lengths.

BUY LUFKIN

TAPES • RULES • PRECISION TOOLS

From Your Supply House 187

THE LUFKIN RULE CO., SAGINAW, MICHIGAN
132-138 Lafayette St., New York City, Barrie, Ontario

"We don't accept more work than we can handle . . ."

What's the secret of this speed?

"There is no secret," Sieder said. "First our engineering, purchasing and construction departments make a realistic appraisal of the owner's (time) requirements.

"Our estimating department is then called in to tell us what speed will do to cost. You can't operate an automobile for the same cost at 90 mph as you can at 30 mph. Before we sign a contract, we want to know the true picture ourselves, and we want to be able to tell the owner what he can expect. After we make a promise, we like to live up to it.

"On every job, we set up a construction time schedule. On the rush jobs, I find that my copies of the original goals are pretty dog-eared. Where there isn't time to waste, delays cannot be tolerated.

"Furthermore, I like to spot the delay and do something about it before the client beats me to the punch. Eventually, the client will, of course, call. The best answer is to tell him what you have already done rather than promise what you plan to do.

"When there is a delay, I am in the office or on the phone with our district managers or our district construction superintendents, or our engineering department heads, if plans are the hold-up.

"Someone, in this group, makes a first hand investigation in the field. Causes are determined and everyone pitches in to bring the work back on schedule. There's no magic involved but the man who can spot bottlenecks and break them before they happen is at a distinct advantage."

Keeping the bottlenecks open has become one of Sieder's most time-

(Continued on page 69)

OWEN BUCKETS

The Universally Popular

ARE IDEALLY ADAPTED TO ALL KINDS AND MAKES OF CRANES

There are dozens of types and kinds of cranes—each with its own features but *one* outstanding clamshell bucket.

Observe these various machines in action and you'll find an impressively large percentage of them equipped with Owen Buckets.

This preference has been gained through years of unequalled digging ability, speed of operation and durability.

You can obtain an Owen Bucket from us exactly suited to your present crane or have it delivered as a part of the complete crane unit.

For the utmost in performance and service *on any crane* investigate and purchase an Owen Bucket. Write for the Owen Catalog.

"A MOUTHFUL AT EVERY BITE"

THE OWEN BUCKET CO.

6010 Breakwater Avenue • Cleveland 2, Ohio

Branches:

New York, Philadelphia, Chicago, Berkeley, Calif.

A fleet of Street Maintenance Equipment

HUBER Maintainer Serves Small City Many Ways

A community of 3,000 residents, more or less, has nearly the same variety of street maintenance problems as larger cities—but usually the amount of money available for the job is limited.

Many communities are solving such problems by purchasing a Huber Maintainer because this single machine, with attachments, serves as a fleet of maintenance equipment.

As a lift-loader, the Huber loads trucks, removes manhole covers and lays pipe. With a bulldozer attachment it does a variety of backfilling jobs. Its maintainer blade keeps alleys smooth and clean and handles grading jobs.

With other HYDRAULICALLY controlled attachments the 6,000-lb., 42½ H.P. Huber can serve as a highway mower, berm leveler, road planer, snow plow, broom or patch roller. Let your nearest Huber Distributor tell you more about the versatile Maintainer and how it can work for you.

HUBER MANUFACTURING CO. • Marion, Ohio, U. S. A.
Manufacturers of Huber Maintainers, Graders and Complete Line of Rollers

HUBER

"Some people just want the general contractor to be a 'job broker' . . ."

consuming functions. His itinerary coincides with the geographical distribution of Ferguson jobs. That distribution includes—Maine to California and Florida to Washington State, and foreign jobs in Canada, Mexico, Colombia, Cuba and Venezuela.

IV. Results

Here are typical Ferguson jobs:

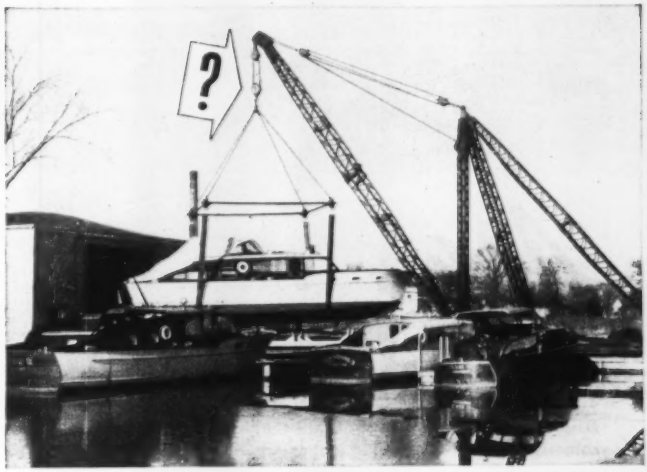
• **Tank plant**—At Newark, Del., Ferguson received a contract to construct a million sq ft of floor space to house manufacturing operations for the Chrysler Corporation Delaware tank plant. Ferguson started filling in a one-time swamp area in mid-January, 1951; by November, the plant was able to turn out its first pilot tank.

• **Titanium plant**—At Henderson, Nev., Ferguson got contracts for both engineering and construction for the reconversion of a wartime magnesium facility to produce metallic titanium. Design work started 1st June; the first titanium was produced four months later.

• **Emergency order**—At Dayton, Ohio, National Cash Register had an emergency military order and needed a half-million sq ft of floor space in a hurry. The contract with Ferguson was signed in late February, 1951. Construction started in mid-March, the building was turned over to the owner in November.

• **Complicated structure**—At Pittsfield, Mass., General Electric needed a complicated structure to carry out a Navy contract. They wanted the building in a hurry. Ferguson delivered it complete in seven months in spite of an unusually severe winter.

What's the capacity of this block?



If you don't know.. ***don't use it!***

An overloaded block can be as expensive as it is dangerous. For example, just imagine dropping a cabin cruiser!

To help prevent such catastrophes, American CROSBY Wire Rope Blocks are *Load-Rated*. The safe working capacity of the block is embossed in the side plate. American CROSBY Blocks are built with the same rugged quality found in giant American crane blocks. Individually packaged, they are delivered in clean, perfect operating condition. Sold by distributors and supply houses everywhere, and made by the makers of genuine Crosby Clips, the famous wire rope fasteners . . . AMERICAN HOIST & DERRICK COMPANY, St. Paul 1, Minnesota.

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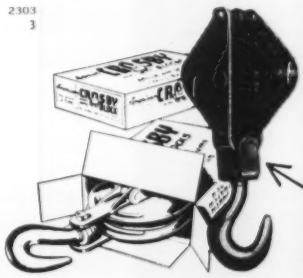
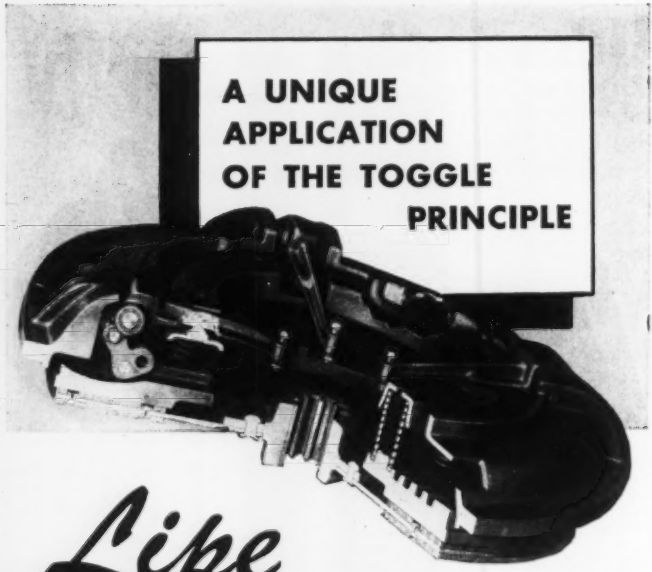
3



American CROSBY

Load-Rated!

WIRE ROPE BLOCKS



Lipe

CONSTANT-CAPACITY CLUTCH

Based on a unique application of the toggle principle, this LIPE constant-capacity CLUTCH compensates for wear of friction material . . . compensates for fading pressure of expanding springs . . . never loses torque capacity while there is a reasonable amount of friction material left to hold. The constantly increasing leverage of the toggle — which never goes over center—builds up pressure in almost direct ratio to these losses.

Toggle Action Insures Smooth Engagement

Despite its multiple pressure action and positive drive, the engagement of this clutch is gentle and chatter free. This is due (1) to the fact that the initial energy of the springs is partly absorbed by the toggles, and (2) to the fact that the rate of engagement is slowed by the reduced speed of the toggle as it approaches center.

High thermal efficiency is assured by a massive plate, ribbed for faster radiation, and cooled by positively generated air currents.

It's a clutch that is bound to change your ideas about clutch design, capacity and service. Write for specifications and performance data.

LIPE ROLLWAY — Lipe-ROLLWAY CORPORATION
Manufacturers of Automotive Clutches and Machine Tools
Syracuse 1, N. Y.

"Our clients are very well satisfied with our work . . ."

• **Viscose rayon plant**—At Mobile, Ala., Ferguson is designing and constructing a viscose rayon staple fiber plant for Courtaulds (Alabama) Inc. The contract is the largest ever carried out by the Ferguson Company for a private industrial concern. Engineering and construction started last fall, and preliminary production operations are scheduled for the end of '52.

V. The Future

"Integrated engineer-builder concerns are necessary in the complicated process-plant field, and may be the coming thing in every construction field," says Sieder.

"The time saving resulting from the integrated operation, added to the co-ordination possible when all the work is done by one company, is so advantageous that it must be the way of the future."

• **Other advantages**—In the process field, especially, the engineer is in a very confidential position as he works on the highly secret production methods of manufacturing concerns. Because the integrated company can use old and trusted employees and not need the services of outside concerns it is particularly able to keep secrets.

"Some people want a contractor to be a job broker, but we will not be satisfied until we stand back of everything in the job," Sieder concluded.

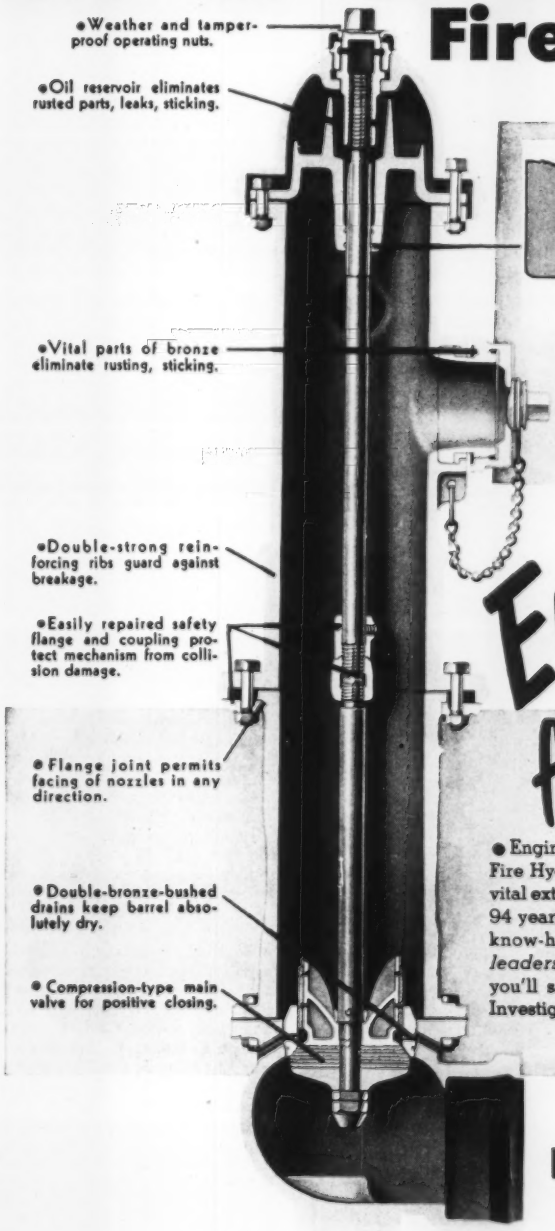
Dandrow gets top post in N.Y. Building Congress

C. George Dandrow, vice president of Johns-Manville, was elected president of the New York Building Congress at its 31st annual meeting.

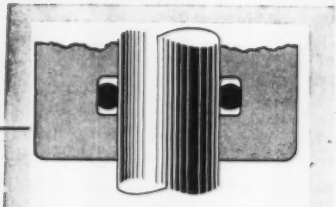
(Continued on page 72)

MUELLER

Fire Hydrants



- Weather and tamper-proof operating nuts.
- Oil reservoir eliminates rusted parts, leaks, sticking.
- Vital parts of bronze eliminate rusting, sticking.
- Double-strong reinforcing ribs guard against breakage.
- Easily repaired safety flange and coupling protect mechanism from collision damage.
- Flange joint permits facing of nozzles in any direction.
- Double-bronze-bushed drains keep barrel absolutely dry.
- Compression-type main valve for positive closing.



"O" RING SEAL provides positive seal, easy turning. Under pressure "O" Ring forced against bronze stem affording perfect seal.

Engineered for Action!

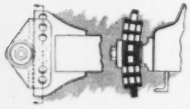
● Engineered for action winter or summer. Mueller Fire Hydrants! That's because they have so many vital extra features not found on ordinary hydrants. 94 years of engineering experience and practical know-how have made *Mueller* fire hydrants *leaders* of the industry. With Mueller hydrants you'll save on initial cost and upkeep expense. Investigate. Write for additional information.

MUELLER CO.

Dependable Since 1857

CHATTANOOGA, TENNESSEE

Another reason why BAKER is the BETTER blade



Baker Blades are designed not only for peak flexibility, but for *rigidity.* With up to 12 inches of tilt available in five positions, the operator simply adjusts the frame at the trunnion brackets by shifting two pins. Also, adjustments are made on an *arc* movement which provide *full bearing contact* in all positions.

That's why owners and operators say Baker Blades will take a beating and *stay solid*—without developing "play" or shimmy.

The complete line of Baker Bulldozers, Gradebuilders and Root Rippers—all easily *interchangeable,* too—is manufactured exclusively for Allis-Chalmers Crawler Tractors. Three mountings are available: engine-mounted hydraulic, frame-mounted hydraulic (the revolutionary 9-X "No Push Beam" 'Dozer) and cable-controlled types.

Call or write your Baker, A-C Dealer today—ask for *proof* why Baker is the better blade—dollar-wise—for *you.*

THE BAKER MANUFACTURING CO.
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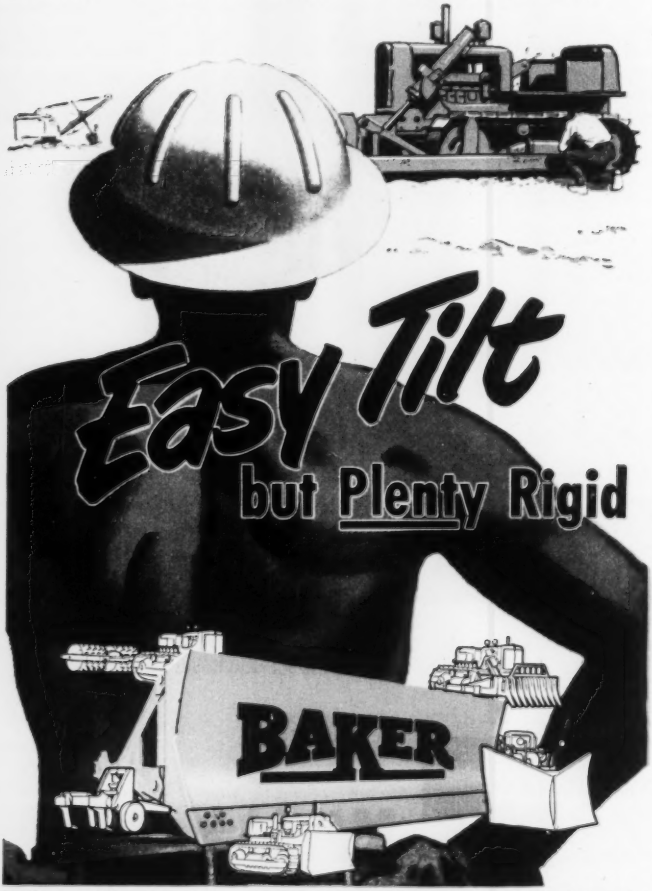

Baker—The most versatile line of tractor attachments

MEN AND JOBS

May 21, 1952. This was the first time in 31 years that the nominating committee selected someone outside of the architectural field.

Dandrow, a graduate of the Massachusetts Institute of Technology in 1922, has been vice president and treasurer of the Building Congress. In addition he is chairman of the important Construction Controls Committee of the Construction Industry organized by the Building Congress.

Active in industry affairs, Dandrow is a member of the Sales Executive Club of New York, the ASCE, the Engineers Club and The Moles.

Careers . . .

• **Appointed**—**John A. Ruhling,** with some 30 years of experience in various fields of construction, is now Washington representative of the American Concrete Pipe Association. Ruhling has been connected with the Sanitary District of Chicago, the bridge division of the Chicago Board of Public Works, the Atlas Portland Cement Co., and the Portland Cement Association in addition to his post as administrative assistant to the general manager of the Century of Progress Exposition. . . . **Robert E. Paulsell,** formerly of the U. S. Geological Survey at Rolla, Md., is now associate Design Engineer at the Paducah, Ky., atomic energy installation operated by Carbide and Carbon Chemicals Co.

• **Honored**—The Chicago Institute of Technology's distinguished service award for professional achievement in engineering science has been awarded to **Harold S. Ellington** of Harley, Ellington and Day, architects and engineers, Detroit. . . . For his study of protective coating materials and methods of application **Sol M. Gleser,** engineer in the Upper Mississippi Valley Division, Corps of Engineers, received the Corps' Meritorious Civilian Service award.

• **Resigned**—**E. B. Skeels,** general manager for Atkinson-Jones Construction Co., Hanford, Wash., and vice president of Guy F. Atkinson Co., San Francisco, retired after 45 years. . . . **Joseph F. Baigas, Jr.,** has resigned his post as New England resident engineer for the National Council for Stream Improvement to join the engineering division of the Celanese Corporation of America in New York City. . . . After 45 years in the Civil Engineering Department, Yale University, **Carlton T. Bishop,** associate professor of civil engineering since 1924, has retired.

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these Gardner-Denver values . . .
no other 600-foot portable has them all

A real 600 — that's truly designed for 600-foot capacity.

Stamina — to run more hours per year for more years — to clock more hours between overhauls.

The right weight — for those long, tough jobs that demand durability.

Two-stage — gives high output for any work.

Fully water-cooled — for all-weather operation — has no complicated oil and water separation problem.

Easy starting — through use of a heavy-duty clutch.

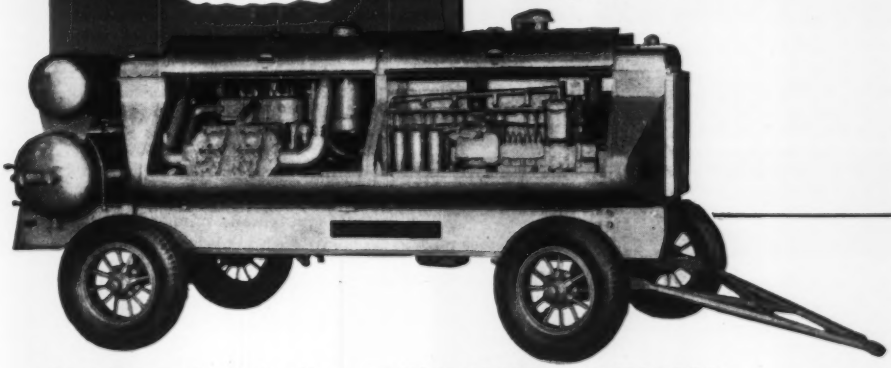
Simple controls — easy to understand — easy to use.

Moderate operating speeds — mean less wear and vibration.

Operates on sloping ground — as well as on the level.

Saves repair time — any master mechanic can make repairs in the field, with ordinary tools.

And don't forget — to compare fuel consumption, too.



Get GARDNER-DENVER and you get MORE VALUE FOR YOUR MONEY

Ask for complete specifications on the Gardner-Denver 600—the big capacity portable air compressor that's built for the discriminating buyer—and backed by Gardner-Denver's 93 years of quality manufacturing experience.

SINCE 1859 **GARDNER-DENVER**

Gardner-Denver Company, Quincy, Illinois
In Canada: Gardner-Denver Company (Canada), Ltd., Toronto, Ontario

Screen Making
looks mighty simple

Screen Making—is simply a matter of making the right kind of openings of the right shape in the right arrangement in the right metal to fit into the well in the right manner so that the right amount of water can enter the pump bowl area with a minimum amount of resistance while holding back the sand formation. Outside of those details, the job is quite simple.

And the right kind of screen in a well is about as important as is the right kind of motor in an airplane. Fifty years ago, Layne bucked the screen problem and came up with something that hasn't been matched by any other manufacturer.

If Layne builds your water supply units and if sand screen is necessary, your job will have the famous Layne horizontally slotted screen. This means that your well will have a longer life, produce more water and operate on a lower cost than is possible with ordinary conventional screens.

For further information about water wells and complete water supply installations with Layne sand screens, address

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WATER WELLS
VERTICAL TURBINE PUMPS
WATER TREATMENT

FOUR-WAY sheetpile corner connection is made by welding on bent plates and interlock pieces.

WELDING PLATFORM is a pair of H-beams secured to footings. Steel dogs hold sheetpile.

Skip-step-back welding keeps sheetpiles straight

The skip-step-back method of fabricating and welding special Z sheetpile corner connections helps to solve a distortion problem that often is annoying and costly.

This method involves welding short sections at different locations along the pile, finally closing all gaps. For instance, on a 45-ft pile, five-foot sections were marked off and designated Nos. 1 to 9, from one end to the other. The sequence of welding began with section 3 and ended with section 9, as follows:

3/1/7/5/2/8/6/4/9.

All accessible welds in each section are completed before welders move on to the next.

The skip-step-back method has been successfully used on sheetpile sections as long as 80 ft, with distortion held to 1 in. in either direction. Such distortion is satisfactory for all practical purposes in this class of work.

The corner illustrated at left shows two extra connections welded continuously for 45 ft. The use of bent plates to establish the required connection angles necessarily doubles the amount of weld required, so that a single 45-ft Z sheetpile contained 360 lineal feet of $\frac{5}{16}$-in. fillet weld. The electrode chosen was a heavy one—class E 6011, $\frac{1}{4}$-in. A 300-amp, 40-volt d.c. welding circuit was used. This combination, while producing a fast, heavy weld, increased the internal-stress tendencies in the sheetpile itself.

The right illustration shows the method employed to secure the sheetpile to the platform that holds the work in place. Steel dogs and wood wedges hold the pile and connection pieces in place during welding. The platform is made of two 89-lb H beams, 90 ft long. They are welded every 3 ft to make a box section that will hold any horizontal or vertical stress to which the section might be subjected. The box section is secured to concrete footings.

When the completed corners are left fastened to the welding platform for 48 hours or longer, the amount of distortion is lessened considerably. Each welded section must be held to this time period before removal and subsequent refastening to make the remaining welds accessible for downhand or flat-position welding.

This time factor makes it necessary to provide additional welding platforms, so welders can keep busy.

The corners shown are being fabricated for an expansion program of the Public Service Electric & Gas Co. plant at Burlington, N. J. Work is taking place at the Claremont Yard (Jersey City) of J. Rich Steers, the contractor—HENRY SCHUTZ. *J. Rich Steers, Inc., New York.*

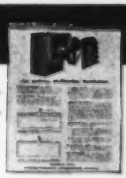
How to ventilate a shopping center

...on the roof...

Positive action, quiet Power Roof Ventilators

Through an inconspicuous grille mounted in the ceiling, each store in this Cleveland shopping center is provided with a 5-minute air change. Larger stores have two, smaller stores one ILG Power Roof Ventilator. Each ventilator is composed of an ILG Self-Cooled Motor Propeller Fan, with an Automatic Shutter, in a weatherproofed, steel Penthouse. Units are positive in action, assuring all-weather ventilation the year 'round, regardless of changes in temperature or wind direction and velocity. Easy to install, simple to service and maintain, the ILG units are backed by a "One-Name-Plate" Guarantee, covering fan, motor, shutter, and penthouse as a unit. Get complete data—phone nearby Branch Office (consult classified directory) or send coupon today.

VENTILATION



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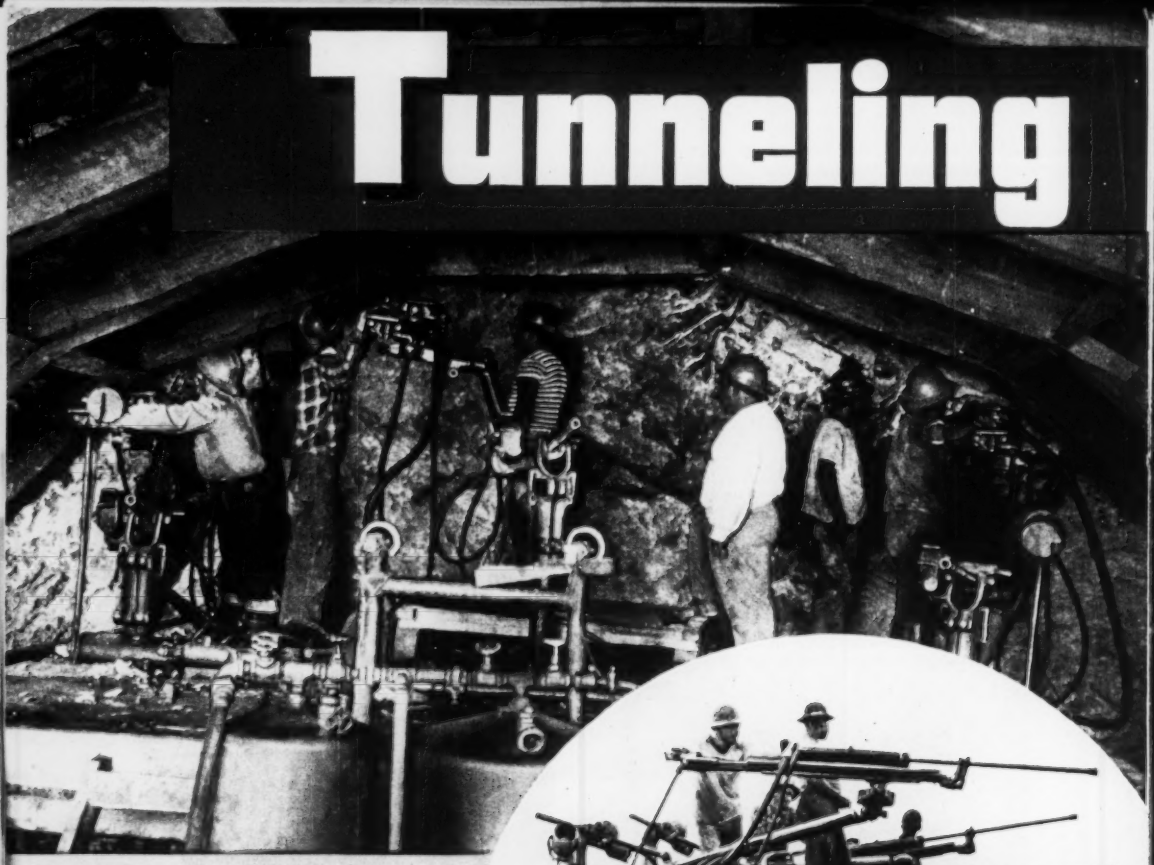
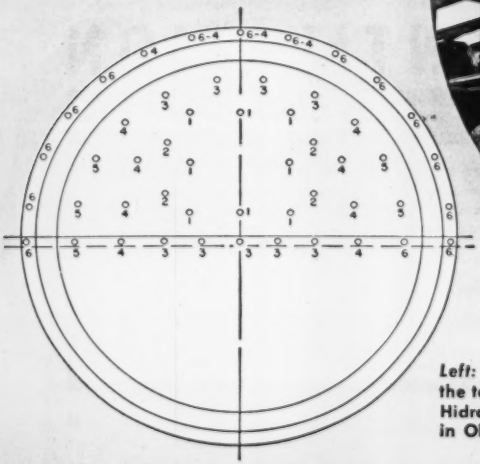
Tunneling



Right: Six-drill jumbo with Le Roi-CLEVELAND power feed drifters and air-motor booms on a 1½-ton truck. 1¼" , round-lug steel and 2" carbide bits. Air supply — two 500 cfm compressors.


6-4
6-4
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costs reduced!

with Le Roi-CLEVELAND Drifters and Jumbo Booms

You spot your holes easier — get less overbreak!

You get higher drilling speeds, for faster cycles!

Better fragmentation! More footage per shift! That's the pay-off, when you use Le Roi-CLEVELAND Jumbo Booms and power-feed Drifters in your rock headings. The pay-off that means lower costs on any rock-drilling or tunneling job.

- Le Roi-CLEVELAND Jumbos are versatile. Air-motor powered booms let you spot and space your holes quickly and easily for the most efficient fragmentation. Their greater flexibility lets you keep the tunnel bore close to pay line — with little overbreak or underbreak.
- Rigid, non-slip set-up feature of Le Roi-CLEVELAND Jumbo Booms keeps drifters in line, prevents steel binding, saves wear and tear on chucks.
- Strong rotation of Le Roi-CLEVELAND Drifters — plus snappy, powerful force of blow — give you unexcelled drilling speed. Graduated feed throttle lets you adjust pressure to get maximum footage in any type of rock formation. Fast feed travel makes steel-changing quick and easy.

Get more drilling done every shift. Save the money overbreak steals from you. Put the versatility of Le Roi-CLEVELAND Jumbo Booms and the dependable drilling speed of Le Roi-CLEVELAND Drifters to work for you. Write today for complete information.

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CLEVELAND ROCK DRILL DIVISION

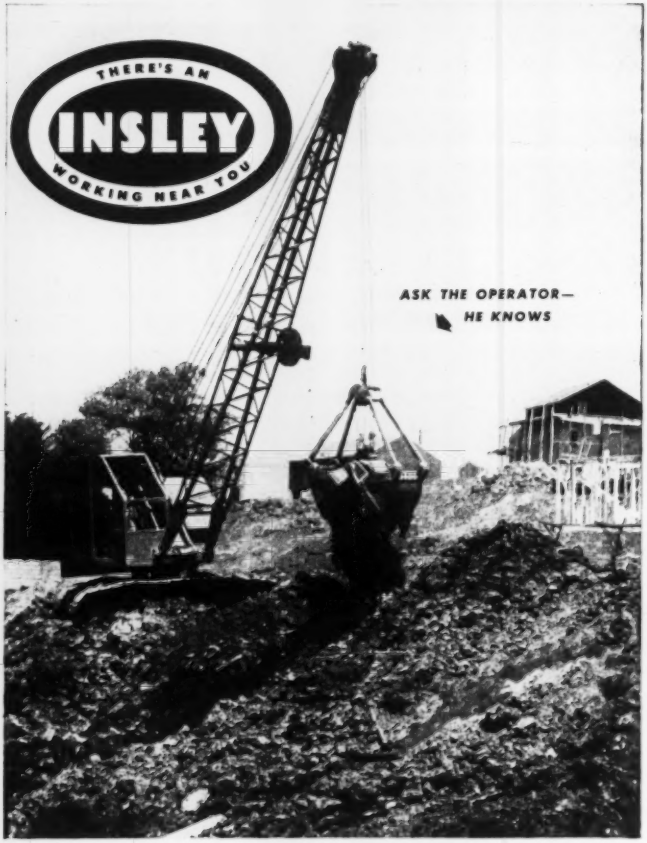
12500 Berea Road, Cleveland 11, Ohio

Plants: Milwaukee, Cleveland and Greenwich, Ohio

The seamy rock in one tunnel at Obregon required 9 sections of timber every 3'. To save time on timbering, the contractors used the Le Roi-CLEVELAND air-motor powered jumbo booms to raise the sections of timber from the top deck of the jumbo to the roof.

Tunnel No. 1 at Obregon is 2411' long; tunnel No. 2, 1378'; tunnel No. 3, 1850'. Tunnel bores were so regular one observer said they must have been cut with a knife.

B-47



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that Insley Equipment can be rated-for-the-project . . . he knows that specification alternates make it possible to buy the exact equipment to do his job best.

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OBITUARIES

Brig. Gen. Samuel Dickerson Rockenbach (USA retired), 83, civil engineer and former commanding general of the District of Washington and commander of the Army's First Tank Corps, died May 16 in Chevy Chase, Md. General Rockenbach, who retired in 1933, was educated at Virginia Military Institute. He worked as a civil engineer from 1889 to 1891. In May, 1917, he went to France on the staff of Gen. John J. Pershing and became quartermaster of the AEF.

Earle P. Johnson, 49, district manager for Wallace & Tiernan in the Pittsburgh area, died May 11. He was a 1925 graduate of Carnegie Institute. He was interested in water and sewage works activities in West Virginia, western Pennsylvania and eastern Ohio. He had just been given the George Warren Fuller Award from the Pennsylvania section of the A.W.W.A.

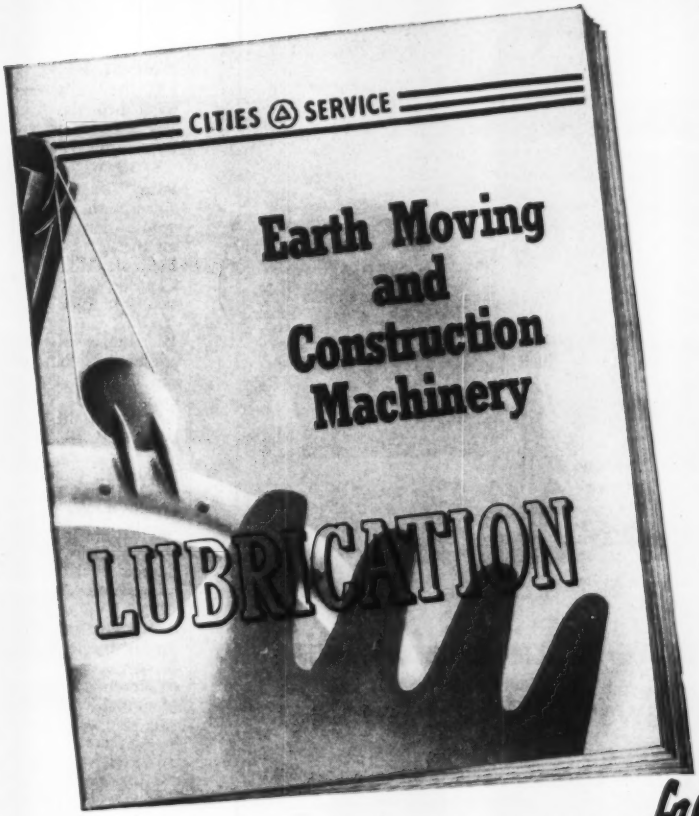
Sanford W. Sawin, 70, retired supervising and design engineer of E. I. du Pont de Nemours and Co. and a former national director of the ASCE, died May 17 in Wilmington, Del. He was a 1903 C. E. graduate of the University of Delaware. In 1922, he served du Pont in Calama, Chile, as assistant superintendent of construction at a dynamite plant there. When he returned to Wilmington, he was sent to the Arlington, N. J., plant of the plastics department as superintendent of construction. In June, 1940, he was appointed supervising engineer on the designing of explosives plants for the government, and, in October, 1944, he was made supervising and principal engineer of the design division, doing work on the atomic energy project.

Lewis Nebinger Fisher, 61, died recently in Decatur, Ill. He was an engineering graduate of the University of Illinois and widely known in the midwest, both as a structural engineer and a builder. He was engaged in the contracting business, first as a partner in Cope and Fisher, and more recently, Fisher-Stoune, Inc., of which he was president.

John L. Lang, 68, president of the engineering firm of Lang and Ross of Canada, died April 29 in Toronto, Ont.

Theodore Leonard, 64, a civil engineer graduate of Ohio State University, died at Columbus, Ohio, May 14.

(*Continued on page 80*)



Have you received your 1952 free edition?

FOR YEARS, men in construction and allied fields have found this lubrication book tremendously helpful. It not only discusses the basic fundamentals of lubrication, but it gets right down to specific lubricating techniques for all your equipment.

Proper use of the practices outlined in this book, plus the full line of Cities Service Quality Lubricants can:

- **Lengthen the life of your equipment.**
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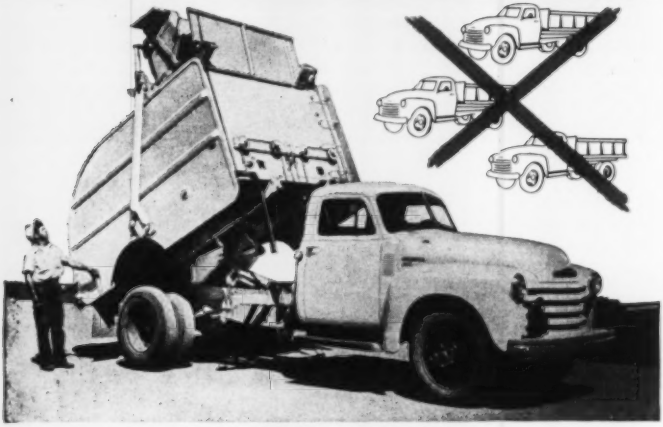
If you're the boss and owner, it protects your investment, increases profits and simplifies your operations. If you're working for the boss, proper use of this book will help you on the job. Write now for your 1952 edition of EARTH MOVING AND CONSTRUCTION MACHINERY LUBRICATION, CITIES SERVICE OIL COMPANY, DEPT. F 14, Sixty Wall Tower, New York City 5.

CITIES SERVICE

QUALITY PETROLEUM PRODUCTS

1 PAX-ALL replaces 2 to 3 open trucks



gives you more efficient refuse handling

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Because PAX-ALL automatically compacts and carries 2 to 3 times more garbage and loose trash than can be loaded into an open truck body, you need fewer pieces of equipment, fewer trips and fewer man-hours to handle the same amount of refuse.

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Hoists and
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OBITUARIES

David M. Berry, 44, bridge engineer with the California Division of Highways, died May 8 in Sacramento. He served as an officer in the Navy Sea Bees during World War II.

John William McClure, 59, civil engineer with the Public Buildings Administration in Washington, D. C., for the last 25 years, died May 10 in Bethesda, Md. He was graduated from Clemson College in 1914 and served in World War I.

W. Finlaw Geary, 62, first vice-president of the Golden Gate Bridge and Highway District, died Apr. 29 in Santa Rosa, Calif. He had been a director on the Golden Gate Bridge board since 1943.

Francis P. Gray, 63, partner in the firm of L. V. Fraley and F. P. Gary, of St. Louis, Mo., engineers and equipment distributors, died in St. Louis recently. He was a graduate of Georgia Tech and held a B.S. degree from Cornell.

Blair Plate, Sr., 62, founder and president of the Plate Construction Co. in Parkersburg, W. Va., one of the largest construction firms in the state, died May 10.

S. W. Price, 65, a steel erecting contractor of Milwaukee, Wis., died May 13. He was president of the Price Erecting Co., which he organized in 1915. The firm has done steel erecting in the U. S. and South America.

Fred Colclough, 57, who had been connected with the State Highway Maintenance Department at Durham, N. C., for the last 21 years, died May 14. Prior to joining the state he was in charge of road maintenance for Durham County for 15 years.

Reuben A. Devos, 61, assistant manager of the department of buildings and properties for the Allis-Chalmers Manufacturing Co., died May 12 at Milwaukee, Wis. A civil engineer, he had been with the firm since 1943.

Alger C. Gildersleeve, 83, a retired civil engineer, died May 3 in Far Rockaway, N. Y. A graduate of Columbia University in 1890, he was associated with several engineering firms until his retirement 20 years ago.

Howard E. Bailey, 56, consulting sanitary engineer, died at Milford, Mass., May 8. He was a graduate of the Massachusetts Institute of Technology, 1917.

LEGAL

Contractor's responsibility for unperformed contract

Where a contract for the construction of a building is entered into and the contractor never starts the performance of the same, the measure of damages that the owner may recover "is the difference between the contract price and what the property would have been worth if completed according to the contract. All authorities seem to hold that the owner is entitled to recover the benefit, or profit, he would have reaped from performance of the contract."[1]

(1) Stanley v Loeb, 243 S.W. 2d 227, Civil Court of Appeals of Texas, Oct. 12, 1951.

State held responsible due to unrevealed data

A contractor brought an action against the State of New York to recover for the increased cost of the work resulting from misrepresentations as to subsoil conditions as set forth in the plans upon which the bids were based.[1] The contract was for the construction of the substructure and approaches to the Peekskill-Annsville Bridge across the Annsville Creek in the city of Peekskill.

The court found as a fact that the state had improperly withheld from prospective bidders material information that it had in its possession as to the subsurface conditions existing at the site of the work and had misrepresented the conditions which would prevail in the stream channel during the performance of the work in the construction of the bridge structures, as a result of which the actual working conditions existing at the site bore no resemblance whatever to those depicted on the plans.

Prior to the letting of the contract, the state had made borings which were omitted from the plans and were not called to the attention of the bidders. These borings disclosed the real conditions that would be encountered in the prosecution of the work. In view of the fact that there was only a 14-day period between the time when bids were invited and the time of the opening of the bids, the court did not think that bidders were under a duty to make their own subsurface exploration. Moreover, without the information disclosed by the borings, bidders could reasonably conclude that the state's design, specifications of quantities and description of

COMPARE BANTAM before you buy any excavator!

NOTE: Bantam backfill blade and 4-ton crane adapter optional at extra cost for fast field conversion.

YOU PAY
Less than
$6100.00
(Less truck and mounting charge F.O.B. Waverly, Iowa. Price subject to change)

YOU GET
- ✓ Complete Hoe unit including boom, stick, and bucket.
- ✓ Big work capacity
- ✓ High speed mobility
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- ✓ Fast conversion to shovel, crane, clam, dragline, grapple, magnet, or pile driver.

For sewer and water line repairs, foundation excavation, drainage installations, etc., no other machine can equal the versatility and economy of a job-proved Schield Bantam back hoe. Mounts on new or used truck . . . drives over city streets, black top or off highway in a hurry . . . maneuvers in congested areas and soft spots where bigger rigs can't go . . . *digs up to 100' of 5' trench per hr. . . . works to 14' depth.* Investigate Bantam economy for your jobs today.

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The LOW-COST machine with the BIG earning range

How Much Does *Instant Communication* Mean To Your Business?

Control On the Dashboard—On black-topping, fill and sewer work, plus sand and gravel operation, General Electric radio system cut Steven Kravec's travel time in 3 counties by 50%.

RUNS 8 JOBS WITH G-E 2-WAY RADIO

WITH no increase in personnel or equipment, a New York State hauling contractor has upped his work output by 25% in one year. Steven Kravec of Syracuse, employing one G-E mobile radio unit in his car, one in a service truck and one at his office, has cut his net cost per job in half. He controls as many as 8 jobs at one time literally from the front seat of his car.

● **New Angle on Time-Saving**—Kravec leaves his home at 6 AM and drives directly to job sites, talking by radio to his office on the way. This saves him 1½ hours of work time each morning. Equipment breakdowns on the job are handled quickly with repair instructions relayed by radio.

● **Pays For Itself**—His complete G-E radio system cost Kravec less than $2500. He reports it paid for itself in the first 3 months, has been a profit-maker ever since. Information on this and other types of industrial radio may be obtained from the Communications Man in the G-E office near you. Mail coupon below for *free* bulletins.

Diverts Trucks in Emergency—Caught on the road by radio message, trucks hauled 15 loads in one hour to shore up a sewer job cave-in. Quick action saved contractor at least $500.

Speeds Change Orders—If ready-mix plant 15 miles away wants #1 instead of #2 stone, order is flashed in seconds to radio car at pit. Time saved: 2 hours for travel and loading.

General Electric Company, Section 2262-5
Electronics Park, Syracuse, New York

Please send me free literature on G-E 2-way radio for industry.

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GENERAL ELECTRIC

the physical condition of the site would permit the erection of the structures and the creation of an approach as shown on the plans.

"When these hampering conditions were encountered, the state's engineers slowed down and, at times, completely halted operations to permit them to consider how to proceed. There followed many delays in the anticipated progress of the work, resulting in increased costs to claimant due to the changed conditions, for which, it is held, the state is answerable."

The court also allowed the contractor, as an element of damage, 10% for overhead and 10% for profit on each item of increased costs awarded, which the court held represents fair and reasonable compensation.

(11) A. E. Ottaviano, Inc. v State, 110 N.Y.S. 2d 99, Court of Claims of New York, Feb. 7, 1952.

Delays due to changes

Article 3 of a government contract provides in part: "The contracting officer may at any time, by a written order, and without notice to the sureties, make changes in the drawings and/or specifications of this contract and within the general scope thereof. If such changes cause an increase or decrease in the amount due under this contract, or in the time required for its performance, an equitable adjustment shall be made and the contract shall be modified in writing accordingly."

After a contractor had started work on a government contract, he was instructed to stop work on a boiler house which was part of the project, because the government decided to redesign that part of the project. The contractor was not permitted to proceed with the work for a period of 175 days. The court held that under the circumstances, the time taken by the government to redesign that part of the structure was unreasonable and constituted a breach of the contract. "The right reserved in the contract to make changes in the work does not mean that the government can take as much time as it pleases to consider such changes, regardless of consequences to the other party to the contract. . . . We think that not more than 40 calendar days would have been, in the circumstances, a reasonable time for the redesign of the boiler house, and that the plaintiff (contractor) may recover its job overhead and administrative expense".[1]

(The summaries are prepared by I. Vernon Werbin, New York attorney and civil engineer.)

(14) Continental Illinois Nat. Bank & Trust Co. v United States, 101 F. Supp. 755.

BIG "CAT" THAT GREW IN BROOKLYN

New Catalytic Refining Unit Produces

50% MORE HIGH-QUALITY MOBILGAS FOR NEW YORK AREA THIS WINTER!

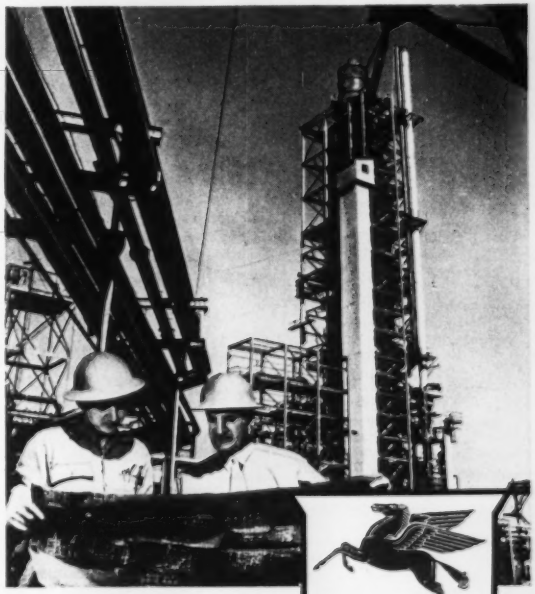
Flying Red Horse Leadership Proved Again!

SOCONY-VACUUM has just completed building one of its largest and most modern, Catalytic Cracking Units . . . right here in the metropolitan area. This new unit provides greatly expanded capacity for producing the original *Flying Horsepower* gasoline.

A Catalytic Poly Unit has also been erected to produce the highest octane number components for Mobilgas and Mobilgas Special!

These new units are producing increased quantities of Mobilgas and Mobilgas Special for the metropolitan area . . . plus super high-power gasoline ingredients to assure top winter pep and performance from your car.

From now on you'll enjoy: split-second starts plus faster warm-up, smoother acceleration... powerful anti-knock performance, even in highest compression cars!



Mobilgas
SOCONY-VACUUM

SOCONY-VACUUM OIL COMPANY, INC.

Drive in at the Sign of Friendly Service!

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founded on Raymond standard piles...

Raymond
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FASTER VIBRATION

MEANS FASTER CONSOLIDATION and

VIBRO-PLUS "ROLLGEAR"*

IS FASTEST!

Because motor and shaft speed are stepped up by the amazing Rollgear Vibrator Head to 11,000 to 15,000 VPM—Vibro-Plus does a more efficient job of consolidating concrete . . . in shorter time.

Rollgear's patented principle achieves this high frequency without gears, V belts or clutches. It does it with less wear on parts, less time out for maintenance or servicing, less operating cost.

Only Vibro-Plus has the Rollgear head—which is the reason why Vibro-Plus is so completely satisfactory in performance, day after day, year after year. Write for bulletin and name of nearest distributor—you'll find Vibro-Plus far superior to any other vibrator you have used.

TYPE PRSB, PNEUMATICALLY OPERATED. *Recommended where electric power is not available, or gasoline engines are impractical. Available with vibrator head of 1¾", 2⅜16" or 2¾" diameter. Shaft and head may be used with gas or electric motors when desired. Comes with standard flexible shaft of 20 or 30 ft. Grinding attachments available.*

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MEETINGS

ROADS AROUND THE WORLD—The recent Washington, D. C., meeting of the International Road Federation was attended by 65 delegates from 25 countries. Action was taken to set up national committees to plan regional and international policy on such projects as the Pan American Highway, advanced training programs for highway engineers and workers, and road publications in the various countries concerned. Above are the speakers at the banquet which high-lighted the gathering. Left to right, are: William Gilchrist, of the Canadian Good Roads Association; Ambassador Fernando Berckmeyer of Peru; Samuel Broers (speaking) of the Washington office of IRF; Frank T. Magennis, vice-president of the Goodyear Tire & Rubber Co.; Antonio M. Martines; Romilo O'Farrill, Mexican Good Roads Association; P. J. Day, Philippine Good Roads Association; Alberto L. Arce, Costa Rican Roads and Highway Association; and Francisco Hernandez, of the Organization of American States.

Industries and cities must cooperate to fight stream pollution, experts agree

How to reduce stream pollution by industries and municipalities without injuring industries or saddling the community with unbearable financial problems was one of the principal questions before the national public health engineering conference at the University of Florida, Gainesville.

• **Is it worth it?**—Malcolm Pirnie of Malcolm Pirnie Engineers, New York City, cautioned against any reckless approach to the problem, particularly on the part of the public. Any development in waste treatment, he declared, must answer in the affirmative the question: Will it be worth what it costs?

Industrial wastes polluting our waters and atmosphere are a rapidly mounting challenge to all technologists and industrial managers with vision, Pirnie said. Wastes so concentrated as to destroy nature's self purification processes in rivers and lakes are profligate spending of natural resources.

Four general methods of reducing stream pollution were reviewed:

Modification of the industrial process to reduce, concentrate, neutralize or eliminate waste.

Recovery of useful by-products.

Treatment of wastes. In many cases, this must be the important method, particularly where small concentrates of phenol cause objectionable tastes in water supplies.

Discharge of industrial organic wastes for treatment in municipal sewage treatment plants.

• **Cooperative disposal**—It was A. Kalinske, director of research and development for Infilco, Inc., of Tuscon, Ariz., who elaborated on the latter method.

It is entirely possible, according to Kalinske, to develop species of organisms which can stabilize organic wastes which would normally upset a treatment plant which handles only domestic sewage.

Specific processes were described by several of the speakers, including F. S. Gibbs of Newton Lower Falls, Mass., who declared there are indications that air-induced flotation will

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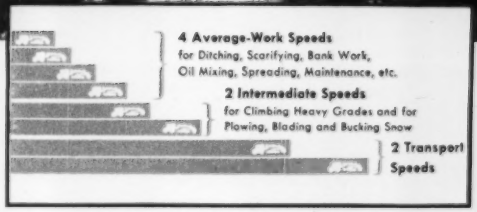

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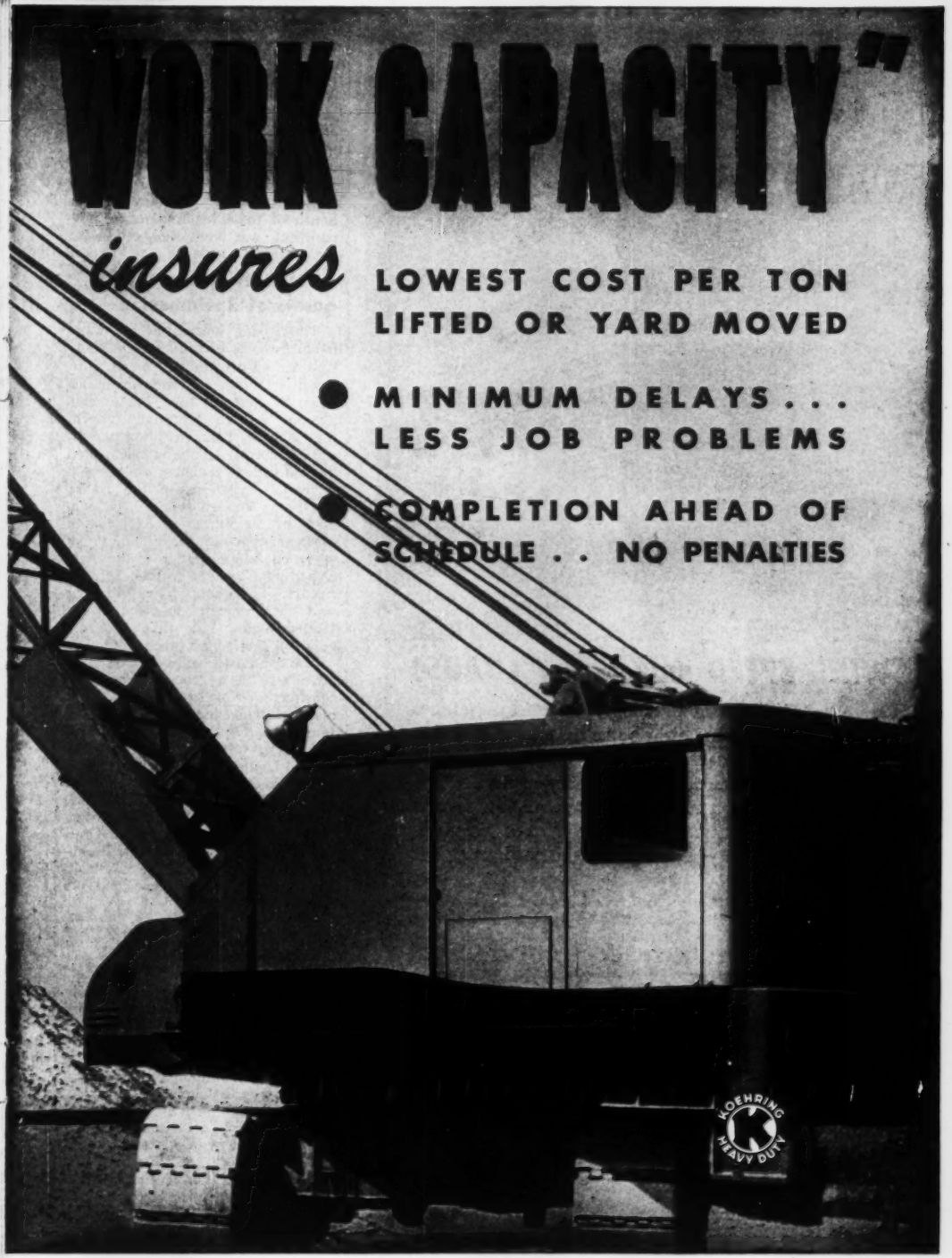
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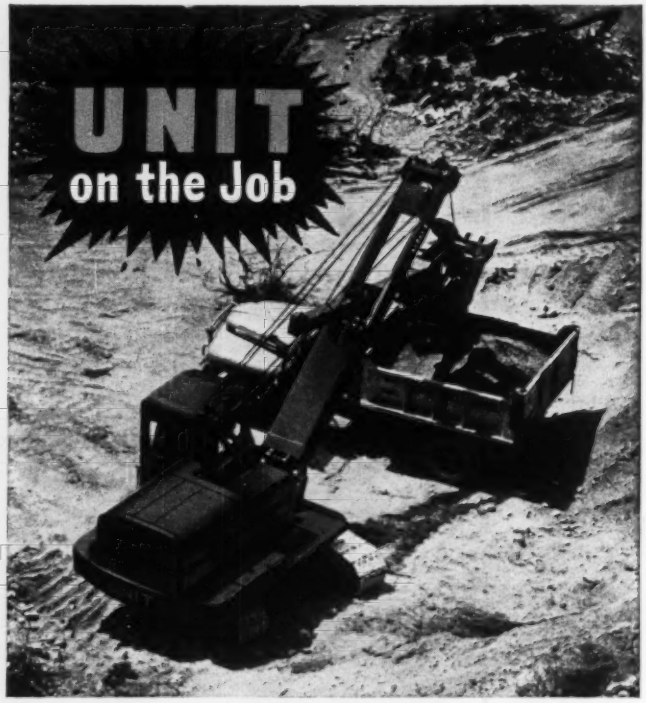

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be the solution to the present high cost barrier to eliminating pollution. John E. Kiker, Jr., of the University of Florida School of Civil Engineering, described diatmite type filters, while T. Jaffe of the University described high rate chemical and biological treatment of sewage. D. B. Smith of the Civil Engineering Department, was conference supervisor.

Foreign irrigation experts guests of Reclamation

Top-ranking officials in the water resources fields from 20 foreign countries are participating in an International Reclamation Conference in Yakima, Washington June 2-6, in conjunction with the official opening of the Columbia Basin irrigation project.

The meeting, to be supplemented by field trips to resources projects and industrial operations in the Pacific Northwest through June 10, is sponsored by the Bureau of Reclamation in cooperation with the Technical Cooperation Administration of the State Department and the Mutual Security Agency. The visitors have paid their own travel expenses to come to the United States, but while here are guests of the federal government.

The conference will be followed by attendance at a general reclamation construction conference at the Reclamation Engineering Center in Denver June 16, and attendance at the American Society of Civil Engineers' Centennial Conference, June 18-20.

The visiting officials come from India, Pakistan, Iran, Iraq, Nepal, Turkey, Ethiopia, Thailand, Burma, Indonesia, Vietnam and Cambodia in Indo-China, Formosa, and the Philippines as well as from Mexico, Brazil, El Salvador, Cuba, Panama, and the Dominican Republic.

New designs suggested for airfield pavements

Approximately 500 civilian and military engineers from this country and abroad gathered at the U. S. Naval Civil Engineering Research and Evaluation Laboratory at Port Hueneme for a recent symposium on airfield pavements for jet aircraft.

It was established by the speakers for the Bureau of Aeronautics, US Navy; Bureau of Yards and Docks, US Navy; Corps of Engineers, US Army, US Air Force; and the Air Ministry, London, England, that the problems inherent in providing pavements for modern aircraft are those resulting from heat, blast, high tire

pressures, and fuel spillage. Flexible pavements at areas of warm-up, maintenance run-ups, and pre-flight run-ups at end of runway were mentioned as most affected by heat, blast, and spillage.

Speakers for the Bureau of Yards and Docks, US Navy, Corps of Engineers, US Army, and the Air Ministry, London, England, reported on tests performed to ascertain temperatures developed in rigid or flexible pavements when subjected to jet blasts of military aircraft. Speakers outlined the extensive field and laboratory evaluation programs currently in progress by their agencies to determine resistance to the solvent action of jet fuels and the heat-resistant properties of seal coats and joint filler compounds currently marketed as inhibitors of the damage due to heat, blast, and fuel spillage on airfield pavements.

Current trends in design of new and modernization of existing airfields pointed toward rigid pavement in locations where the severest damage from the jet engine is anticipated in the warm-up area, and areas for maintenance run-ups, and pre-flight run-ups at end of runway with either rigid pavement or dense graded asphaltic-concrete as the surface course for runways.

CALENDAR

American Congress on Surveying and Mapping, The Shoreham, Washington, D. C., June 11-13.

Association of State Planning and Development Agencies, annual meeting, Nicollet Hotel, Minneapolis, Minn., June 15-19.

Conference on Marine Borers and Prevention of Deterioration in Waterfront Structures, St. Moritz Hotel, Miami Beach, Fla., June 11-13.

Conference, "Building in the Atomic Age", M.I.T., Cambridge, Mass., June 16-17.

American Society of Civil Engineers, spring meeting, Cosmopolitan Hotel, Denver, Colo., June 17-20.

Conference on Soil Stabilization, M.I.T., Cambridge, Mass., June 18-20.

American Society for Engineering Education, Dartmouth College, Hanover, N. H., June 22-27.

National Businessmen's Conference on Urban Problems, Portland, Ore., June 22-24.

Forest Products Research Society, annual meeting, Milwaukee, Wis., June 23-25.

American Society for Testing Materials, 50th anniversary meeting, Hotel Statler, N. Y. City, June 23-27.

American Institute of Architects, Waldorf-Astoria Hotel, N. Y. City, June 23-27.

Symposium on Earthquake and Blast Effects on Structures, University of California, Los Angeles, Calif., June 26-28.

National Conference on Clays and Clay Technology, University of California, Berkeley, July 21-25.

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RESEARCH

Prestressed concrete studied at Lehigh

Establishment of prestressed concrete as a standard construction material for short span highway bridges may be closer as a result of the new $20,000 research project to investigate full-scale prestressed concrete bridge members now under way in the Fritz Engineering Laboratory at Lehigh University, Bethlehem, Pa.

The project is under the co-direction of Prof. William J. Eney, head of civil engineering and mechanics and director of the laboratory, and A. C. Loewer Jr., associate professor.

The initial phase will take a year, and is the first step in an analysis of the interaction of the individual beams making up an entire bridge. The ultimate aim will be to establish correlation between beam performance and present design theories to aid in the preparation of a highway bridge specification for prestressed concrete.

A pretensioned, prestressed concrete beam 38 ft long and of sufficient cross-section to support standard highway loads is being set up in the laboratory and tested on a 36-ft span. A testing machine to apply repeated loads of 50,000 lb every second has been developed, to simulate the load when a truck crosses at 40 mph.

Financing of the tests is by the Pennsylvania Department of Highways through the Bureau of Public Roads; the Reinforced Concrete Research Council through the Engineering Foundation; and the Research Corporation. Materials are furnished by Concrete Products Co. of America and John A. Roebling's Sons Co.

Quartz paper is substitute for asbestos insulation

A quartz paper, which may be substituted in certain cases for higher-cost asbestos insulation material, was recently developed by the Naval Research Laboratory, a division of the Office of Naval Research. The laboratory says it can be manufactured cheaply from abundant domestic sources. It is made from fibers, but are chemically identical with quartz.

Two types have been made; hydrous and anhydrous. The former contains water, hence it duplicates asbestos in that respect. The paper produced at NRL is not only magnetic-free, but will withstand temperatures up to 3,000 deg F as compared with an

(*Continued on page 93*)

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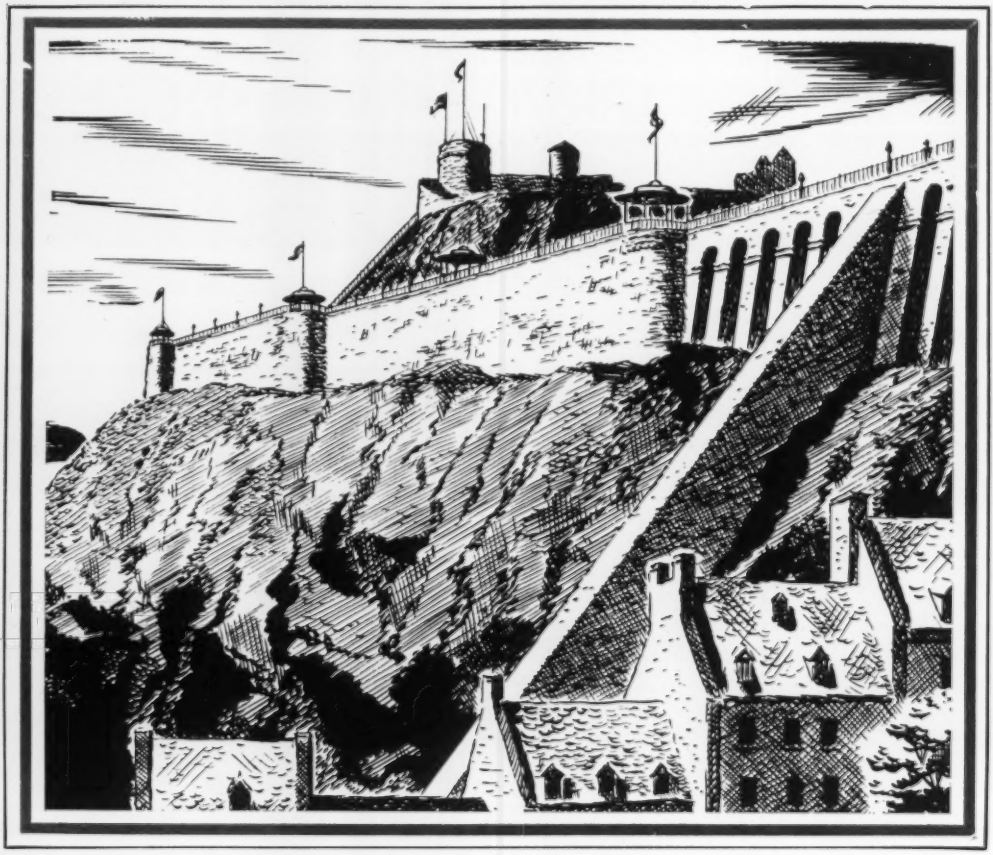

Quebec's famous Citadel, over 330 feet above the St. Lawrence, as it looked 100 years ago

Romantic Quebec has a cast iron gas main in service that was installed over a century ago. Reminiscent of those days are the horse-drawn vehicles for nostalgic tourists. Now, how could the gas engineers have foreseen the advent of trailer-trucks and giant buses, and the resultant traffic-shock? . . . That sewers and conduits for utility services would ultimately share the underground at risk of soil disturbances? Yet that gallant old cast iron main has had the necessary shock-strength and beam strength. Effective resistance to corrosion, as well as strength, are *must* factors of long life in pipe to be laid under city streets. This is shown by the fact that cast iron water and gas mains, laid over 100 years ago, are still serving in the streets of more than 30 cities in the United States and Canada.

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upper limit for asbestos somewhere near 1,000. It is also boron-free, which means that neutrons will pass through it. Thus, Navy scientists see potential uses for it as insulation in nuclear energy power plants and nuclear-powered naval vessels. More general use of its boron-free characteristic would be in the application as insulation for electrical cable. In writing for additional information refer to release 344-52 from Department of Defense, Office of Public Information, Washington 25, D. C.

Engineers will investigate migratory fish problem

The North Pacific Division of the Corps of Engineers has started on a nine-year program of engineering research on the migratory fish problem to find out: (1) what kind of facility will do the best job of getting fish past high dams, and (2) how can this facility be operated most economically.

Division Engineer Col. E. C. Itschner, announcing the program in Portland, Ore., pointed out that fish facilities at Corps of Engineers projects have become increasingly expensive. At Bonneville, they cost about $7.5 million, compared with $20 million at McNary and an estimated $30 million for The Dalles Dam.

Fish facilities could be built more economically and operated with considerable savings to the government, he declared, if more definite information about requirements were known.

The program will be conducted in cooperation with fish and game commissions of Oregon, Washington and Idaho and the U. S. Fish and Wildlife Service. Various universities and private individuals will be invited to take part in some portions of the project. Greatest activity is expected in the 3d to 5th years of the program.

All investigations will be limited to problems definitely related to Corps of Engineers dams, and no work purely biological in character or in the field of fisheries management will be undertaken.

Research is planned on activated sludge

A research project in the field of sanitary engineering to obtain information on the adsorptive capacity of activated sludge will be conducted soon at the North Carolina State College of Engineering at Raleigh, N. C.

Dean J. H. Lampe of the School of Engineering, said the work will be under the U. S. Public Health Service.

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BOOK REVIEWS

Handbook for frame design

RIGID FRAME FORMULAS—By A. Kleinlogel (based on a translation by F. S. Morgenroth from the 11th edition of Rahmenformeln). 460 pp. Frederick Ungar Publishing Co., New York, N. Y. $10.

This is the first American edition of the famous German handbook, "Rahmenformeln." It presents formulas for reactions, shears and bending moments in 114 different types of one-story, single-span rigid frames, the members of which have constant moments of inertia. As many as 19 different loadings are considered for each frame.

Rectangular, triangular and parabolic-girder rigid frames are considered. Variations include frames with fixed or hinged supports and with supports at different levels. Formulas are given for a total of 1,643 different frames and loading conditions.

The book, no doubt, will be useful to engineers who only on infrequent occasions are required to design rigid frames and have thus become somewhat rusty on structural theory. But designers familiar with such analytical methods as moment distribution, column analogy or dummy-unit load will probably find use of the formulas impractical for all but the simplest types of structures and loadings. Unfamiliar symbols and retention of German letters in the translation may also be objectionable to some designers.

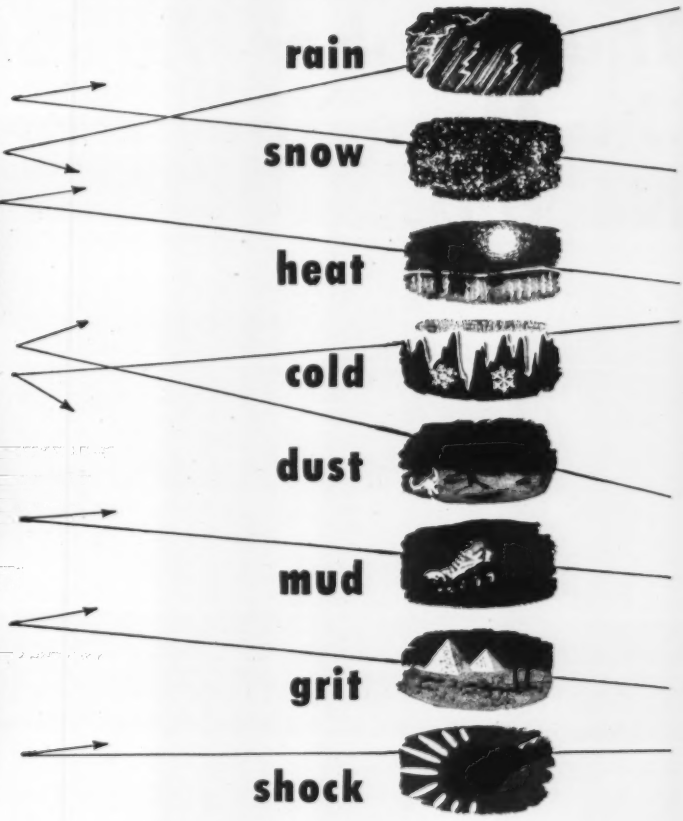
British air-map methods

HANDBOOK OF AERIAL MAPPING AND PHOTOGRAMMETRY—By Lyle G. Trorey. 178 pp. Cambridge University Press, Cambridge, England, and 51 Madison Ave., New York 10, N. Y. $5.00.

The approach to photogrammetry in England has been geometrical (analytical), rather than optical (or instrumental) as it has been in Europe and the United States. Hence the American surveyor who has some familiarity with photogrammetry will find himself in a strange environment when he opens this book.

Not entirely strange, however, because Mr. Trorey, a Canadian, sums his World War II experience in London in blending the geometrical and optical approaches. His objective was to develop map-making techniques that could be taught quickly to large numbers of British-empire army personnel. Military maps in great numbers were needed.

The methods, substantially analyti-



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cal, are described in detail sufficient for operational use. Recommended procedures are broken down into elements that can be mastered by a beginner with ordinary mathematical aptitude. And to amplify this breakdown, the "Standard Mapping Procedure of the Royal Canadian Engineers" is presented in an appendix.

Miscellaneous Notes on Booklets and Reprints

• **Helpful suggestions** for avoiding corrosion are contained in "Atmospheric Exposure Tests of Nailed Sheet-Metal Building Materials," BMS Report 128, of the National Bureau of Standards, obtainable for 20 cents from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Recommendations include: (1) Lead washers should not be used with aluminum building sheets. Neoprene, especially the type pigmented with carbon black, offers great promise for sealing washers. (2) Wood surfaces to be covered with aluminum should be properly painted or covered with asphalt-impregnated felt or water-resistant paper. (3) Aluminum nails only should be used with aluminum or aluminum-coated steel sheet. Galvanized sheet should be secured with aluminum or galvanized steel nails.

• **Pollution problem defined**—The Ohio River Valley Water Sanitation Commission has issued "Ohio River Pollution—Abatement Needs—Huntington-Cincinnati Stretch." This is one of a series of reports on existing conditions aimed at establishment of a pollution abatement plan for the whole river. Recommendations for corrective action are included. Sewage treatment should remove completely settleable solids and 45% of suspended solids. Facilities for killing 95% of coliform bacteria in raw sewage should be provided, their operation to vary with season and river flow. Copies can be obtained from the commission at 414 Walnut St., Cincinnati 2, Ohio.

New Engineering Books

THE DISPLACEMENT METHOD OF FRAME ANALYSIS—By G. P. Manning. 120 pp. Concrete Publications Ltd., 14 Dartmouth St., London S.W.1, England. Price 9s.

THE WELDING ENCYCLOPEDIA—Thirteenth Edition. By T. B. Jefferson and L. B. Mackenzie. 1008 pp. McGraw-

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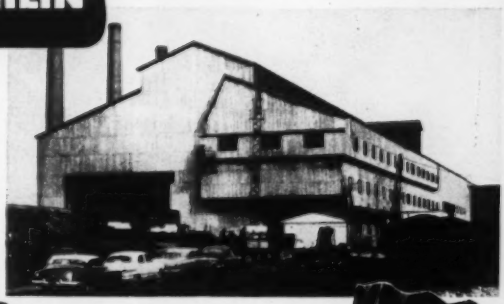

CHOOSES

Plasteel

PROTECTED STEEL

ROOFING and SIDING

STEEL RUST INHIBITOR ASPHALT PLASTICS MICA

MICA makes the DIFFERENCE

GOES UP FAST—
LASTS AND LASTS!

PLASTEEL speeds erection! It's light in weight, easy to handle, requires no skill. Best of all, PLASTEEL prolongs the life of your buildings. *Mica makes the difference!* It prevents deterioration! Adds protection! Insulates! Beautifies!

Plasteel is tested and classified by Associated Factory Mutuals Laboratories and Underwriters Laboratories.

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Saxe Welding Connection Units position and secure structural parts to be welded.

Clip K3A permits an adjustable connection.

These widely used units eliminate all hole punching and, with welding, produce the most economical, safe and quickly erected structural frame.

Write for 1951 edition, Structural Welding Practice Manual.

J. H. WILLIAMS & CO.
Buffalo 7, New York
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CAPACITIES TO 600 TONS

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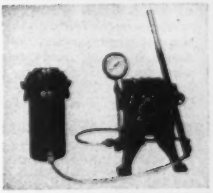

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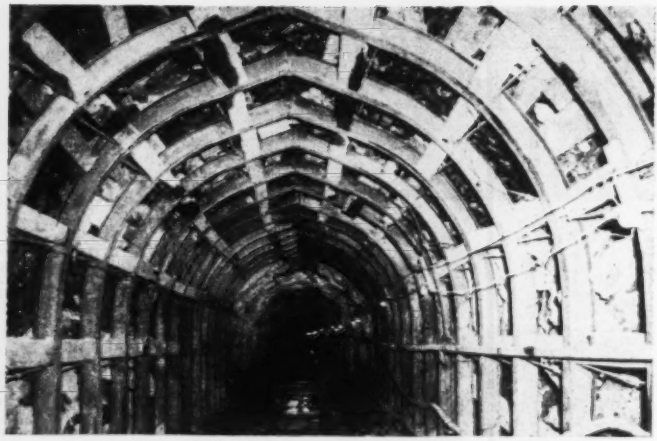

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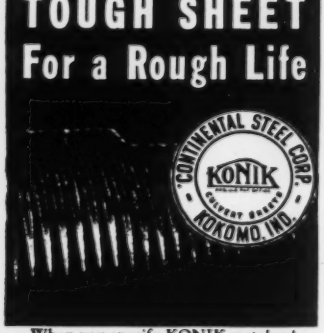
For a Rough Life



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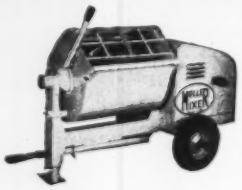

• An investment that will give you better plaster and mortar at far lower costs than old hand methods. Ideal for both inside and outside use. Holds full bag batch of most mixtures.

PRICE $312 (with electric motor)
$330 (with air-cooled engine)
FOB Metuchen, N. J.

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Hill Publishing Co., New York 36, N. Y. $7.50.

SURVEYING, MAPPING AND RELATED ENGINEERING—Technical report No. 23. 416 pp. Published by Treasurer's Office, Tennessee Valley Authority, Knoxville, Tenn. $2.25.

THE RISE OF THE SKYSCRAPER—By Carl W. Condit. 255 pp. The University of Chicago Press, 5750 Ellis Avenue, Chicago 37, Ill. $5.00.

Reports and Pamphlets

FIRE RESISTANCE OF SHUTTERS FOR MOVING-STAIRWAY OPENINGS—Building Materials and Structures Report 129, National Bureau of Standards, Superintendent of Documents, Washington 25, D. C. 10¢.

A MODERN STEEL DECK GIRDER HIGHWAY BRIDGE—By Ned L. Ashton. The Lincoln Electric Co., Cleveland, Ohio. 25¢.

FLOOD CONTROL AND NAVIGATION MAPS OF THE MISSISSIPPI RIVER—Cairo, Ill. To The Gulf of Mexico. 19th Edition. Scale Approximately 1 inch to 1 Mile. Mississippi River Commission. Vicksburg, Miss. $2.00.

PROCEEDINGS OF THE THIRTY SIXTH ANNUAL HIGHWAY CONFERENCE—University of Michigan, Ann Arbor, Mich.

MANUAL OF PROFESSIONAL PRACTICE FOR CIVIL ENGINEERS—Manual of Engineering Practice 29. American Society of Civil Engineers, 33 West 39th St., New York, N. Y. $1.00.

TIDAL DATUM PLANES—Revised edition. Special Publication 135. Coast and Geodetic Survey. Superintendent of Documents, Washington 25, D. C. 60¢.

UNITED STATES EARTHQUAKES: 1949—Serial No. 748, Coast and Geodetic survey. Superintendent of Documents, Washington 25, D. C. 35¢.

MANUAL OF RECONNAISSANCE FOR TRIANGULATION—Special Publication No. 225, Coast and Geodetic Survey. Superintendent of Documents, Washington 25, D. C. 30¢.

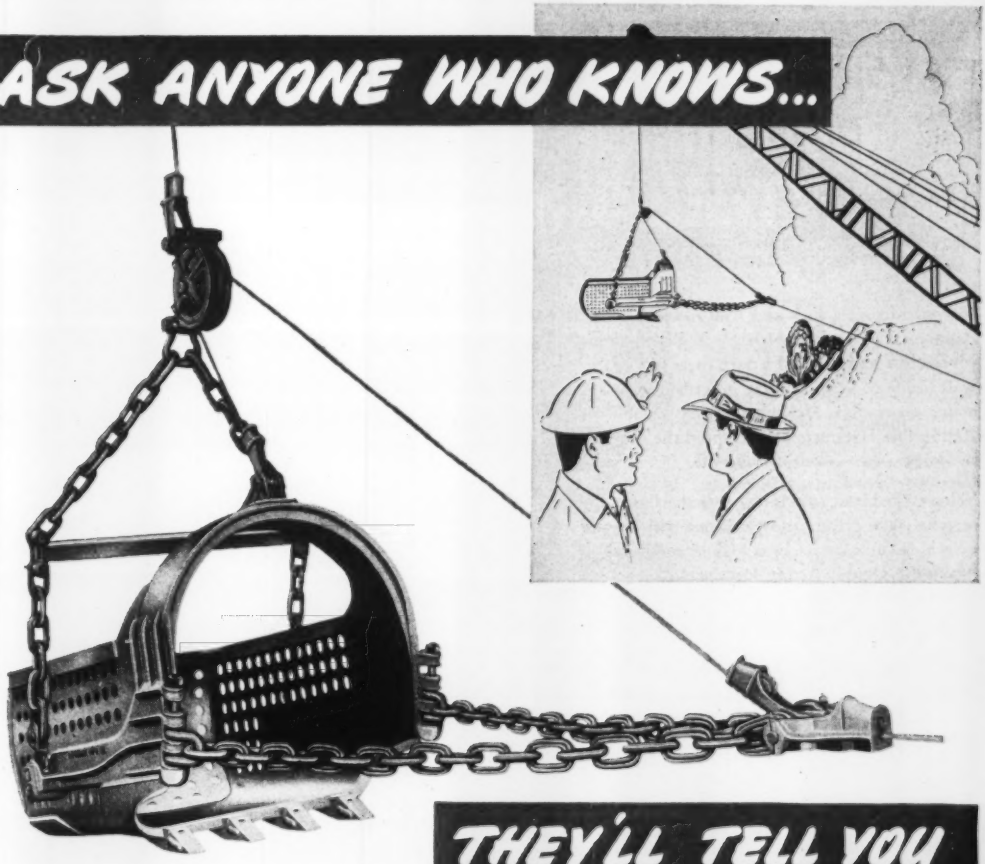
SYMPOSIUM ON BULK SAMPLING—Special Technical Publication 114, American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. $1.75.

SYMPOSIUM ON STRUCTURAL SANDWICH CONSTRUCTIONS — Special Technical Publication 118, American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa. $2.00.

SUBSURFACE DRAINAGE—Bulletin 45, Highway Research Board, 2101 Constitution Ave., Washington 25, D. C.

SHELTER FROM ATOMIC ATTACK IN EXISTING BUILDING—Part I, Methods for Determining Shelter Needs and Shelter

ASK ANYONE WHO KNOWS...



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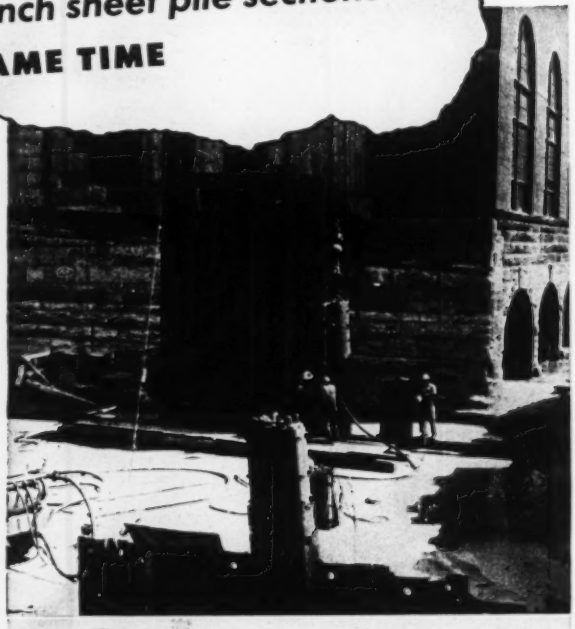
Driving two 16-inch sheet pile sections AT THE SAME TIME



In constructing a lock and dam near St. Anthony Falls in the Mississippi River, the contractors had to build a deep sheet pile cut-off wall inside of a big cellular cofferdam to insure a dry excavation. McKiernan-Terry Double-Acting Pile Hammers helped speed the project by doing a *two-in-one driving job.*

With every blow, *two* 16-in. steel sheet pile sections were driven into sandstone with the aid of a high-pressure jet by a McKiernan-Terry No. 9-B-3 Double-Acting Hammer in some instances and a No. 7 Double-Acting Hammer in other instances. Driving conditions were difficult because the sandstone crumbled into snow-white sand, but both of the powerful McKiernan-Terry Pile Hammers quickly drove the two steel sheet piles an average of 30 to 40 ft. down to 11 feet below the deepest excavation.

Wherever you find tough pile driving jobs, you are likely to see McKiernan-Terry Pile Hammers at work . . . under all conditions, on every type of terrain. Discover their dependability and profit-making possibilities for yourself. Complete McKiernan-Terry line includes 16 sizes of single-acting and double-acting hammers and two sizes of double-acting extractors. Send for bulletin.

McKiernan-Terry Pile Hammers sink steel pile sections two at a time on this Mississippi River project at Minneapolis, Minn. Contractors were Al Johnson Construction Co., Minneapolis, (Sponsor) and Peter Kiewit Sons' Co., Omaha.

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MEAD-MORRISON COAL AND ORE UNLOADERS AND BRIDGES
Available in a variety of designs and in capacities of 300 to 1500 tons per hour. Exceptional durability proven by installations in service for half a century. Simple controls afford convenient, comfortable and speedy operation.

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Range of types and sizes take bulk materials loads up to 25 tons. Ruggedness without excess weight.

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Typical of the extensive facilities of McKiernan-Terry for unusual jobs.

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Areas. Federal Civil Defense Administration. Superintendent of Documents, Washington 25, D. C. 20¢.

THE YOUTZ-SLICK LIFT SLAB METHOD OF CONSTRUCTION—By John B. Porter and Richard S. Colley. The Institute of Inventive Research, Box 2296, San Antonio 6, Tex.

STUDIES OF SLAB AND BEAM HIGHWAY BRIDGES: PART III—Small-scale tests of sheer connectors and Composite T-beams. Bulletin 396. University of Illinois Engineering Experiment Station, Urbana, Ill. $1.00.

PLANE COORDINATE PROJECTION TABLES—Montana, No. 261 (25¢); North Dakota, No. 262 (20¢); South Dakota, No. 263 (20¢); Maine, No. 256 (20¢); Arizona, No. 257 (20¢); Wyoming, No. 258 (15¢); Indiana, No. 269 (15¢); Supt. of Documents, Washington 25, D. C.

DURABILITY OF STEEL SHEET PILING IN SHORE STRUCTURES—Technical Memorandum 12. Beach Erosion Board, Corps of Engineers, Dept. of the Army, Washington 25, D. C.

TENTATIVE STANDARD SPECIFICATIONS FOR CAUSTIC SODA—American Water Works Assn., 521 Fifth Ave., New York 17, N. Y. 15¢.

HOW TO IMPROVE ENGINEERING MANAGEMENT COMMUNICATIONS — Executive Research Survey No. 1. The National Society of Professional Engineers, 1121 Fifteenth St. N.W., Washington 5, D.C. $2.00.

LATERAL AND VERTICAL PRESSURE OF GRANULAR MATERIAL IN DEEP BINS—Bulletin 172, Iowa Engineering Experiment Station, Ames, Iowa.

STUDIES OF THE FLOOR SYSTEM OF AN IOWA HIGHWAY BRIDGE—Engineering Report No. 9, Iowa Engineering Experiment Station, Ames, Iowa.

TENSION AND CONTROL OF SUSPENSORY MEASUREMENTS—By L. Mabry Adams, Route 2, Cleborne, Tex. 25¢.

THE HYDRAULICS OF SPRINKLER IRRIGATION SYSTEMS—Bulletin No. 212, Washington State Institute of Technology. The State College of Washington, Pullman, Wash.

HOUSING IN EUROPE—A special report by the 1951 European Housing Study Committee, National Association of Homebuilders, 1028 Connecticut Ave., N.W., Washington 6, D.C. Free.

SUGGESTED LAND SUBDIVISION REGULATIONS—Division of Housing Research, Housing and Home Finance Agency. Superintendent of Documents, Washington 25, D.C. 45¢.

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Universal Joints mean
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ON POWER WHEELBARROWS

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Look for them — on everything from power wheelbarrows to truck cranes. Where you see Blood Brothers Universals, you'll see a "good omen of good quality."

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SURVEYOR STAKES
Stained Yellow Bound with Steel Strapping

	Per 100	In 1000 Lots Per 100
2x2—12"	$ 7.15	$ 6.80
—15"	8.80	8.00
—18"	9.60	8.70
—24"	11.50	10.45
—36"	16.50	15.05

GRADE STAKES

1x2—12"	5.60	5.10
—15"	5.75	5.20
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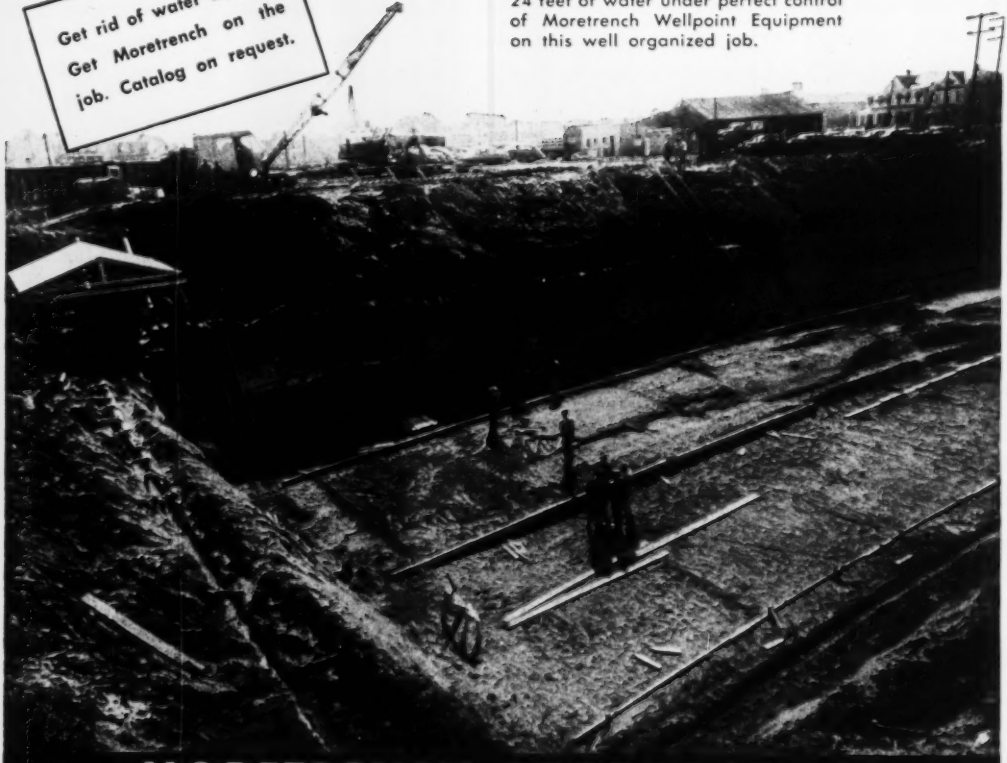
. . . another reason why a MORETRENCH WELLPOINT SYSTEM is the preferred way to solve a pumping problem.

It guarantees your freedom —

to *work* unhampered by water
to *excavate* by whatever method you choose
to *progress* as fast as you can
to *save* while you're doing it.

Get rid of water worries. Get Moretrench on the job. Catalog on request.

24 feet of water under perfect control of Moretrench Wellpoint Equipment on this well organized job.



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MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
July Materials, and Labor Prices will appear in July 10, 1952 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.: per block		CONCRETE Ready Mixed 1:2:4, over. 50 c.y., del.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	
Atlanta	$3.81	$3.50	3.30	$2.00	$2.00	$1.75	$2.10	$2.10	$1.65	$1.85	$0.19	$0.19	$11.50
Baltimore	3.76	3.45	3.38	2.50‡a	2.50‡a	2.00‡a	2.70‡a	2.80‡a	2.60‡a	2.55‡a	.17	.17a	10.80
Birmingham	3.11	2.68	....	2.24a	2.24a	1.94a	2.50	2.50	1.10	1.30	.165	.165	7.85
Boston	4.01	3.69	3.81	2.50a	2.50a	2.50a	1.50a	1.60a	....	....	.206	.22a	11.50k
Chicago	3.33	3.02	....	3.00‡b	3.00‡b	3.40‡b	3.00‡b	3.00‡b	2.00‡	2.00‡	.22	.22b	11.50
Cincinnati	3.53	3.23	3.32	2.00‡c	2.00‡c	2.05‡c	2.35‡e	2.35‡e	....	....	.21	.225a	10.95f
Cleveland	N. A. in C. L.		....	2.05af	1.85f	1.70	3.81a	3.81a	2.85‡	2.85‡	....	.23	13.00g
Dallas	2.95	2.65	2.70	2.18	2.28	1.84	2.22	2.38	....	....	.125a	.215	9.30
Denver	3.89	3.59	3.89	1.85	2.00	1.20	....	....	....	....	.22	.255a	10.50
Detroit	3.27f	3.00	3.05	4.25‡b	4.25‡b	3.75‡b	4.25‡	4.25‡	4.25‡	4.25‡	.19	.20a	10.30f
Kansas City	3.30	3.03	3.15	1.85‡	1.85‡	1.50a	2.00‡a	2.00‡a	....	....	.23aq	.23c	10.95b
Los Angeles	4.00a	3.60a	4.72	1.95a	2.20a	1.95a	2.08a	2.08a	....	....	.12/m	.235m	10.43‡bm
Minneapolis	3.80d	3.49d	3.41	2.30‡aq	2.30‡aq	1.35‡aq	2.50‡aq	2.50‡aq	....	....	.21‡k	....	11.25/k
Montreal	3.01ac	2.86ac	....	2.50	2.50	2.25	1.05j	1.30j	....	....	.20	.20a	9.65ak
New Orleans	3.20e	3.02e	3.18	2.32	2.32	1.82	....	....	1.05	1.25	.25	....	12.90
New York	3.86	3.55	3 43	2.35bk	2.35bk	1.60bk	2.50bl	2.50bl	....	....	....	....	11.35am
Philadelphia	3.43/3.82‡	3.12/3.49‡	3.43/3.48‡	2.75‡	2.75‡	2.15‡	2.10‡	2.15‡	1.75	1.65	.22/.25	....	11.50
Pittsburgh	3.32	3.04	3.32	2.15‡	2.15‡	2.10‡	2.60‡	2.60‡	2.15	2.15	.23d	.23d	11.00
St. Louis	3.27/3.48‡	2.84/3.10‡	3.05/3.22	2.90am	2.90am	2.30/2.70am	1.70j	1.70j	1.25	1.25	.215	.27cs	10.40
San Francisco	3.36	2.96	....	1.92	1.92	2.02	2.02	2.02	....	....	....	.22cl	10.30e
Seattle	3.75a	3.25a	4.50a	3.00‡bm	3.00‡bm	3.00‡bm	3.50‡bm	3.50‡bm	....	....	.24j	.3325j	10.95f

‡Delivered. * Prices incl. dealers comm. except as noted.
CEMENT: a Subj. to 10¢ dis. b Less 2% for cash. c CL price dealers' comm. not incl. d Dealers sell only LCL. e Plus switching charges. f Paying up to $3.80 for cement brought in from outside sources. h LCL.
SAND, GRAVEL, STONE & SLAG: a Truck lots. b Per cu. yd. c 5 tons or more. e ½". f Pea gravel. g Less 5% for cash. h Less than 5 tons. i Sales tax incl. j F.o.b. quarry. k Barge lots asd. l F.o.b. scow Hudson river. m Less 2% for cash. n F.o.b. cars.
CONCRETE BLOCK: a Cinder. b Waylite. c Haydite. d Celocrete. e 5‡ x 8 x 12 in. f 8 x 4 x 16. g F.o.b. truck at job. i Less 2% for cash. j Less 1% for cash. k 8x8x18. l F.o.b. plant San Rafael. m F.o.b. yard.
READY MIXED CONCRETE: a 5 cu. yds. or over del. Man. b 25 cu. yds. or more. c 10–100 cu. brackets. e 2,000 lb. conc. f 2500 lb. comp. g Aver. haul 7–9 mi. zone. h Less 50¢ for cash. i 5% off for cash. j 2% off for cash. k Sales tax included. l 1:2½:4. m F.o.b. yard. n Plus escalator clause.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10c. per bbl. for payment within 15 days of date of invoice. Subject discount 10c. per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 30¢ per bbl., not refundable

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$2.60†	Buffington, Ind.	$2.55†	Steelton, Minn.	$2.65†	Muskegon, Mich.	$2.70†	Toledo, O.	$2.60†
Clinchfield, Ga.	2.60†	Independence, Kan.	2.50†	Leeds, Ala.	2.45†	Saginaw, Mich.	2.60†	Milwaukee, Wis.	2.75†
Kingsport, Tenn.	2.60†	Hannibal, Mo.	2.55†	Duluth, Minn.	2.65†	Wyandotte, Mich.	2.60†	Green Bay, Wis.	2.75†
West Des Moines, Iowa	2.65†	Northampton, Pa.	2.60†	Hudson, N. Y.	2.60†	Buffalo, N. Y.	2.60†	Ironton, O.	2.60†
Nazareth Pa.	2.60†	Universal, Pa.	2.65†	Alpena, Mich.	2.50†	Oswego, N. Y.	2.75†	Montreal City	2.61
Bath, Pa.	2.60†	Waco, Tex. (+ 10¢ tax)	2.50†	Detroit, Mich.	2.60†	Cleveland, O.	2.60†	W. Winfield, Pa.	2.65†

†*Prices to hold for second quarter of* 1952.

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	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80–300 penetration		CUTBACK ASPHALT Per ton		ROAD OIL Per gal.	ASPHALT EMULSION (Quick-breaking) Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	$73.00	$35.00	$2.25	$26.00	$33.25	$0.1975	$0.339	$0.095w	$0.185w	$0.105	$(.115	$0.225
Baltimore	150.00‡	57.70‡	.....	22.00	.....	.0809	0.15	.09w	.17w	.09i	.09	0.12
Birmingham	.....	45.50i	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	24.50a	35.50a	22.00av	35.50av	.....	.....	.09a	.105a	.22a
Chicago	155.00‡	90.00‡b	4.40/4.60‡f	20.25b	30.25b	19.25bv	29.25bv	.0875bw	.18‡w	.075b	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	200.00	55.00d	4.12g	23.00‡	.....	23.00‡	....	.1025‡w	.194‡w	.11‡	.19‡
Dallas	e	40.00	e	24.05	43.09	.1016	.2103	27.09	47.87	.0980	.1041	.2128
Denver	.....	48.00	.....	.....	....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	92.00	.....	26.82	....	26.82v	.....	.117w	.....	.0925	.....	.270r
Kansas City	e	e	e	18.55el	...	.....	.....	.0725‡w	.....	.0635e	.....	.....
Los Angeles	e	.....	e	15.50dwz	...	15.50dvz	....	17.00dz	.....	16.00dy	.0825j	.1525j
Minneapolis	.....	.....	2.83‡k	23.90	.....	22.90	.....	.0994w	.....	.0894	.1035	.....
Montreal	.....	e	e	27.10n	36.65n	.135n	.183n	16.30nu	18.80nu	.132n	.184nz	.225nz
New Orleans	.....	.....	.....	17.50s	.....o	17.50sv	.....o	.085sw	.....o	.0882	.085	.....
New York	.....	.....	3.12f	26.26q	47.59q	25.26st	46.58st	.1071w	.2021w	.1071	.1072	.1993
Philadelphia	175.00	110.00	4.06	22.00	....	.....	.....	.095u	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	23.00	37.00	.10	.20	27.00	39.00	.095	.09	.205
St. Louis	.....	.....	.....	18.68/	.....	.1698	.....	.0865/.089w	.....	.....	.....	.....
San Francisco	.....	55.00e	.....	17.00q	32.50qp	17.00qkv	32.50qkv	19.00q	36.50q	17.50e	.085y	.....
Seattle	.....	.....	.....	17.00ah	37.50h	16.25hv	.....	19.50h	....	18.50hs	.095h	.105hr

‡ Delivered.
PAVING BRICK & BLOCK: a CL. b 3½ x 4 x 8½. c 2½ x 8½ x 4. d LCL, truck deliveries. e Not used. f 2" interior 6¢ treat. g 3". h 8¢ treat. i 3 x 3⅝ x 8½.
ASPHALTS: a Price at plant, Everett, Mass. b F.o.b. refinery, Lockport, Ill. c F.o.b. Sugar Creek, Mo. d F.o.b. refinery, El Segunda. e F.o.b. Baton Rouge. f F.o.b. Wood River or Roxana, Ill. g F.o.b. Richmond, Calif. h F.o.b. Martinez. i Bulk refinery. j F.o.b. refinery, Inglewood, Calif. k 50–110 penetr. l Less than 100 penetr. m 40–80 penetr. n Tax incl. o Drums not avail. p Shipped in steel bbl. q 40–85 penetr. r In customer's drums. s Shipped in drums, per drum. t 85–300 penetr. u Per 100 gal. v Per ton. w Per gal. z Also tank trucks. y F.o.b. Oakland. ‡ F.o.b. refinery Cleveland.

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	Light	Re-rolled	TRACK SUPPLIES Angle Bars	Std Spikes	Tie Plates	Track Bolts
Birmingham Area	$3.65	$3.70	$3.70	$7.85	....	$72.00	$80.00	Not	$4.70	$6.15	$4.50	....
Chicago Area	3.65	3.70	3.70	7.85	$4.45	72.00	80.00	avail-	4.70	6.15	4.50	....
Pittsburgh Area	3.65	3.70	3.70	7.85	4.45	72.00	80.00	able	4.70	6.15	4.50	$9.85
Buffalo Area	3.70	3.70	3.70	7.75	4.45	72.00	80.00	....	4.70	6.15	4.50	9.85
Cleveland	....	....	3.70	7.85	....	.....	.....	....	....	....	....	9.85
Youngstown Area	....	....	3.70	....	....	.....	.....	....	....	6.15	....	....
Geneva	3.65	3.70	....	....	....	.....	.....	....	....	....	....	....
Los Angeles	....	....	4.40	....	....	.....	.....	....	....	6.15	....	....
Pueblo	3.65	3.70	3.70	....	....	72.00	80.00	....	4.70	6.15	4.50	9.85

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price *u* 5 tons to carload lot *b* New billet	Rail steel	Add switch	$/cwt for Del.	EXPANDED METAL LATH *k* Per 100 sq. yd., carload lots Std. diamond mesh, 3.4 lb.	Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING *d* Per 100 sq. ft., carload lots 4x16 in., No. 5 & 10 wires	4x12 in., No. 8 & 12 wires	6x6 in., No. 6 & 6 wires
Atlanta	$7.01	$6.84	$6.84	$.025	$...	$36.00	$40.00			
Baltimore	6.15	5.49*f*	....	....	....	42.00	45.00			
Birmingham	5.70	5.75	5.75	.05	.15	47.00*p*	52.00*p*			
Boston	6.20*a*	6.19	6.19	....	....	40.50	44.50			
Chicago	5.70	4.95*ff*	4.95*ff*	.0625	....	45.00	50.00			
Cincinnati	6.24*ak*	5.88*r*	....	....	.15	38.50*azee*	41.00*azee*			
Cleveland	5.95	4.81*e*	....	....	....	37.00‡	40.00‡			
Dallas	8.85	7.00	7.00	....	....	49.00	52.00			
Denver	7.20	7.10*e*	....	....	....	54.50*a*	65.00*ga*			
Detroit	6.12	5.74*n*	....	....	.20	53.00	58.00			
Kansas City	7.07*nn* Est	6.67*ff* Est	....	....	....	41.00 Est	44.00 Est			
Los Angeles	6.40*fak*	6.21*g*	....	....	....	48.00	54.00*kk*			
Minneapolis	6.15*kk*	7.12*ll*	7.12*ll*	....	....	37.00	39.50			
Montreal	6.55*aB*/6.75*A*	4.75*i*	4.75*g*	....	....	44.10*k*	46.80*k*			
New Orleans	....	5.55*ak*	....	.05	....	40.00	40.00			
New York	6.50*r*	6.25	6.25	....	.30	38.50*at*	45.00*at*			
Philadelphia	6.10	6.15	....	....	....	38.00‡	42.00‡			
Pittsburgh	5.40/5.60	5.40/5.60	....	....	.10	34.00‡	36.00‡			
St. Louis	6.02*a*	5.34*e*	5.34*e*	....	....	47.00*aa*	53.00*aa*			
San Francisco	7.15*ii*	6.50*l*	....	....	....	40.50	43.50			
Seattle	4.30*e*	5.55*el*	....	....	....	57.00*mmm*	47.00*mmmz*			

A.P.M.* Joliet, Illinois, Donora, Penn., $2.96
F.o.b. Mill: Monessen, Penn., $2.76

A.P.M.* Joliet, Illinois, Donora, Penn., $1.87
F.o.b. Mill: Monessen, Penn., $1.93

A.P.M.* Joliet, Illinois, Donora, Penn., $2.79
F.o.b. Mill: Monessen, Penn., $2.89

‡ Delivered. *b* 1–5 tons, add 35¢. Less than 1 ton, add 50¢. *c* 20 tons or over base. *d* Mill price plus freight. *e* F.o.b. plant. *f* Includes delivery in free delivery zone. *g* 10,000 to 39,999 lbs. *h* List price. Dominion tax exempt. Provincial and Municipal tax extra. *i* Plus Dominion, Provincial and Municipal sales tax. *j* Price per ton. *k* F.o.b. city. *l* Intermediate and hard grade, new billet. *m* Per sq.yd. *n* 5–10 tons. *o* 5 to 20 tons base. *p* Del. of 500 sq. yd. or more. *q* Std. ribbed, 4 lb. per sq. yd. *r* 5 tons or over. *s* LCL. *t* Asphalt coated. *u* Note: Revised size extra — 1 in., 1¼ in., 1½ in., 10¢. ¾ in., ¾ in., 15¢. ⅞ in., 25¢. ½ in., 50¢. ⅜ in. 80¢. ¼ in. $1.90. *v* 20 tons. Straight. *w* Copper bearing. *x* 2.5 lb. per sq. yd. *y* $0.0093 transportation tax included. *z* Copper alloy. *aa* Delivered truck to job. Contractor to do unloading. *dd* F.o.b. dock. *ee* F.o.b. cars. *ff* Carload lots. *gg* Including sales. *hh* 10,000–19,999 lbs. *ii* 400–999 lbs. *kk* ¼" ribbed. *ll* 5 to 8 tons, f.o.b. city. *mm* 2% off for cash. *nn* 1–5 tons. *ff* 10 tons to CL. *aa* 2000–9999 lbs *A.* Amer. struct'l shapes. *B.* Canadian shapes.

* At Producing Mill.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in. *a*	ASBESTOS CEMENT PIPE per lin. ft., f.o.b. city 6" Pr Cl. 150	12" Sew Cl. I	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13–44T std. 8 in. s.s.	std. 12 in. s.s.	24 in. ds.	36 in. ds.	CLAY DRAIN TILE ASTM C4–24 Per 1,000 ft., carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: *ASTMC 14–41 12 in.	24 in.
Atlanta	$99.00	$1.44	$2.42	.....	.....	.....	.....	.....	.....	.....	.....
Baltimore	109.00	1.46	2.42	.546	1.053	4.275*A*	11.3775*A*	178.20	274.80	.90	2.45
Birmingham	93.00	1.44	2.42	.42	.75	2.99	....	210.00‡	375.00‡	1.25*m*	2.75*m*
Boston	113.00	1.46	2.20	553*uzz*	1.025*uvy*	4.545*uvy*	11.90*uvy*	187.80*v*	289.20*v*	1.55*mg*	3.80*mg*
Chicago	107.00	1.44	2.20	.70*m*	1.35*m*	5.62*m*	13.50*m*	150.00‡	270.00‡	.80	2.80
Cincinnati	106.00	1.46	2.29	567*y*	1.093*y*	4.32*y*	11.175*y*	164.40	254.10	.75*m*	2.80*m*
Cleveland	108.00	1.46	2.29	.462*x*	.89*x*	3.69*x*	10.045*x*	158.00*m*	245.65*m*	.75*m*	2.95*m*
Dallas	107.00	1.46	2.54	436	.822	3.234*b*	9.176	.....	.....	.49	1.60
Denver	115.00	1.55	2.54	.43*dd*	.74*dd*	3.18*dd*	....	.....	.....	.74*m*	2.50*m*
Detroit	108.00	1.46	2.29	.70	1.35	5.35	14.40	240.00*m*	360.00*m*	.80	3.20
Kansas City	106.00	1.46	2.29	.515	.92	3.64	....	216.70	.....	.70*p*	3.00*p*
Los Angeles	122.00	1.53	2.29	.54*f*	1.07*f*	5.24*f*	13.06*f*	228.20*f*	348.90*f*	.85	2.40*ff*
Minneapolis*	112.00	1.50	2.42	.66*mo*	1.20*mo*	4.85*mo*	....	.....	.....	1.36*h*	3.87*h*
Montreal	100.00	....	....	.85*z*	1.50*z*	5.25*z*	....	.....	.....	1.17*j*	3.11*j*
New Orleans	101.50	1.44[1]	2.42	.498	.905	5.03	....	229.70*bb*	402.00*bb*	.65	2.29
New York	111.35	1.46	2.20	.64	1.21	4.86	12.71	.....	.....	1.15	2.50
Philadelphia	110.00	1.44	2.20	.65	1.25	4.95*A*	12.65*A*	300.00‡	350.00‡	1.55*h*	3.75*h*
Pittsburgh	109.00	1.46	2.20	.406*m*	.772*m*	2.85*m*	7.652*m*	147.00	230.00	1.05*h*	2.50*h*
St. Louis	103.00	1.46	2.29	.51	.93	3.65	8.58	190.00*l*	300.00*l*	1.20*il*	2.70*il*
San Francisco	122.00	1.55	2.29	.61*d*	1.20*d*	5.03*d*	12.57*d*	240.00*l*	400.00*l*	.95	3.20
Seattle	124.00	1.55	2.42	.51*b*	.91*b*	....	.....	150.00*e*	.....	.86*ee*	2.56*ee*

‡ Delivered. *a* Class B & heavier. Based on existing freight rates; subject to rate change. Gas pipe and class A, $5 per ton additional. 4 in., $7 per ton additional. 30 in. and larger, usually, $1 per ton less. *b* Extra strength ASTM C 200–44T. *c* 4-in., $90. *d* SS361-A. *e* 30-in. *f* F.o.b. factory. *g* Culvert pipe. Reinforced, ASTM C76–41. *h* Reinforced, ASTM C75–41. *i* Reinforced, ASTM C76-37. *j* Centrispun. No. standard specifications in Can. *l* F.o.b. plant. *m* Truck delivery. *o* Listed price is based on LCL (no minimum). *p* Less than 5 tons, per price per ft. *t* Within switching limits. *u* ASTM C13–40. *v* C.L.f.o.b. origin, freight allowed. *x* 2 ft. lengths. *y* 3 ft. lengths. *z* CESA A 60–1941 specifications used. *aa Extra strength* ASTM C–800–50. A standard strength. * 6" to 8", $1.67 per ft.; carlots, F.o.b. track Class 150. *bb* Freight allowed to destination in city. *cc* Truck loads; f.o.b. plant, Newton. *dd* LCL delivered, f.o.b. truck. *ee* 1% off for cash. *ff* 21.

*WROUGHT STEEL PIPE

Mill	(Full standard weight) Black %	Galv. %	
Lorain, Ohio	43.5	23.5	
Aliquippa, Pa.	43.5	21.5	
Sparrows Pt., Md.	41.5	21.0	
Benwood, W. Va.	43.5	23.0	
Youngstown, O.	43.5	23.0	
Indiana Harbor, Ind.	42.5	22.0	
Sharon, Pa.	43.5	21.0	
Wheatland, Pa.	43.5	23.0	
Fontana, Calif.	32.00	18.50	

Mill	2½ & 3 in. Butt Weld Black %	Galv. %	3½ to 6 in. Lap Weld Black %	Galv. %	
Lorain, Ohio	43.5	23.0	36.5*a*	14.5*a*	16.5*a*
Aliquippa, Pa.	43.5	21.5	36.5*a*	12.5*a*	17.0*c*
Sparrows Pt., Md.	41.5	21.0	33.5*a*	....	14.5*a*
Benwood, W. Va.	43.5	23.0	38.0*c*	17.0*c*	16.5*a*
Youngstown, O.	43.5	23.0	35.5*a*	14.5*a*	18.5*a*
Indiana Harbor, Ind.	42.5	22.0	....	....	18.0*c*
Sharon, Pa.	43.5	21.0	38.5*a*	16.5*a*	17.0*ab*
Wheatland, Pa.	43.5	23.0	38.0*c*	17.0*c*	17.0*ab*
Fontana, Calif.	32.00	18.50	24.0*ab*	10.0*ab*	10.0*ab*

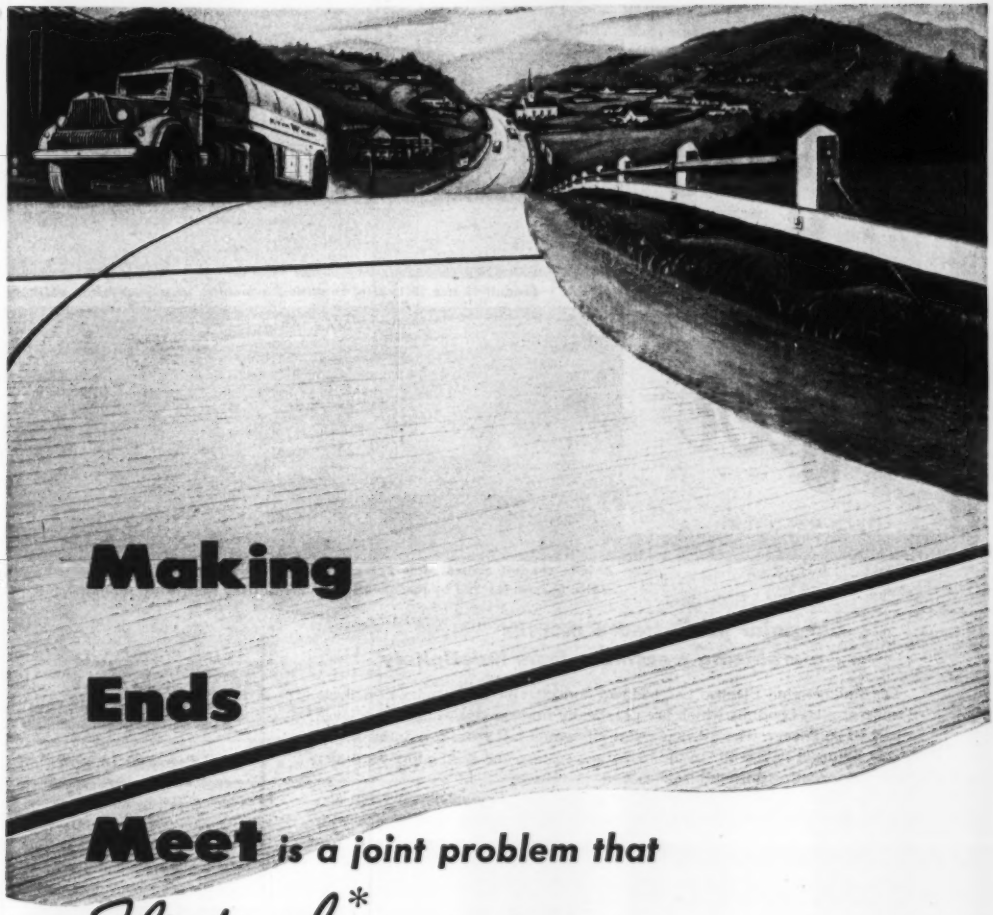
a 3½ to 4 in. *b* Continuous weld. *c* 5 and 6 in.

† Threaded and coupled.

* WROUGHT STEEL PIPE: Discounts from standard list consumers carload prices. Base price approx. $200 per net ton. List prices per ft.: *Butt Weld:* ⅛ in., 5½¢; ¼ in., 6¢; ⅜ in., 6¢; ½ in., 8½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. *Lap Weld:* 3½ in., 92¢; 4 in., $1.09. 5 in., $1.48; 6 in., $1.92. Freight rates to destination to be added to price plus 3 percent tax on transportation.

WROUGHT IRON PIPE: List prices per ft. same as wrought steelpipe. Discount for Pittsburgh base. *Butt Weld* — 1 in. black, + 20.0, galv. + 50.0; 1¼ in. black, + 20.0, galv. + 49.5, 1½ in. black, + 14.0 galv. + 46.0; *Lap Weld* — 2½ in. to 3½ in. black + 20.5, galv. + 48.5; 4½ in. to 8 in. black + 17.5, galv. + 44.0. Freight rates to destination to be added to name delivered price.

(Continued on page 107)



Making Ends Meet

is a joint problem that Flintseal* answers best...

...and most economically!

It's easier to keep within the limits of your pavement budget *when the joints are positively sealed.*

Count on it that your concrete will stand up better . . . become a good, lasting investment . . . when durable Flintseal is in the joints.

One application of this high quality hot-poured joint-sealing compound lasts for years. Flintseal holds its bond *firmly* . . . through extremes of hot and cold weather, against water and foreign matter.

You'll find that this rubber asphalt thermoplastic compound remains extensible and compressible through all cycles of concrete expansion and contraction. Therefore, in the long run, it's more economical than older types . . . appreciably reducing maintenance bills.

* Reg. U. S. Pat. Off.

Flintseal JFR, a special jet fuel resistant joint sealer, is also available for airfields.

Complete technical data and specification procedures are available on request. Write today for new descriptive folder.

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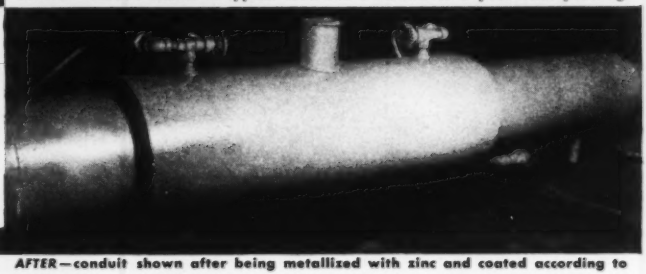
FLINTKOTE
Products for Industry

before

***BEFORE*—conduit shown in typical condition 6 months to a year after *painting*.**

after



***AFTER*—conduit shown after being metallized with zinc and coated according to Metco System No. 103 by Metalweld, Inc., metallizing contractors, Philadelphia, Pa.**

old paint job lasted 6 months —metallizing treatment lasts indefinitely

The Philadelphia Electric Co. has had considerable maintenance on these underground conduits which are practically immersed in water for a large part of each year. The average paint job would last from 6 months to one year before it flaked off. In the meantime rusting had been going on under the paint coating during this period.

The first of these conduits was metallized with zinc over two years ago —the zinc then being covered with a vinyl after-coat in accordance with Metco System No. 103. Careful periodic inspections have revealed *no apparent changes* in the coating over this period. Even when the vinyl after-coat fails, which may conceivably occur after 5 years or so—the zinc coating is still there providing complete protection against corrosion and it will only be necessary to replace the vinyl after this extended time. Even this will be very inexpensive compared to the replacement of the previous paint jobs, since there will be no rust or paint flake requiring removal by wire-brushing or sandblasting, a comparatively expensive procedure.

Metallize 'Em—And You Can Almost Forget 'Em. The following organizations are set up to provide positive corrosion protection at lower annual cost in accordance with Metco* System specifications. For further information, or copy of descriptive bulletin, contact the one nearest you.

* *Reg. U. S. Pat. Off.—Property of Metallizing Engineering Co., Inc.*

THE METCO SYSTEMS...

are a series of 18 basic engineering specifications developed by Metallizing Engineering Co., Inc. Developed over 19 years of experience with pure zinc and aluminum coatings on many different types of structures and equipment, the Metco Systems provide the answer to standardization of surface preparation, metal coating thicknesses and organic after-coatings for various service conditions and appearance requirements.

Metco System contractors

Baltimore 30, Maryland **THE SOUTHERN GALVANIZING COMPANY** 1616 Bush Street Tel. Gilmor 7711	**New Orleans 13, Louisiana** **GULF ENGINEERING CO., INC.** 1000 South Peters Street Tel. Canal 4421	**Newport Beach, California** **CLARK METALLIZING, INC.** 506—30th Street Tel. Harbor 2509	**Barberton, Ohio** **AKRON SAND BLAST CO.** 50 E. Springfield Rd. Tel. Plaza 3412	**Buffalo 1, N. Y.** **METAL-CLADDING, INC.** Lakeview & Porter Avenues Tel. Elmwood 9536
Lincoln Pk. 25 (Detroit), Mich. **DIX ENGINEERING CO., INC.** 1417 Dix Road Tel. Dunkirk 1-8822	**Philadelphia 29, Pa.** **METALWELD, INC.** Fox & Hunting Park Ave. Tel. Radcliff 5-3471	**St. Louis, Missouri** **NOOTER CORPORATION** 1420 South Second Street Tel. Main 6000	**Brooklyn, N. Y.** **ARTHUR TICKLE ENGINEERING WORKS, INC.** 21 Delevan Street Tel. Main 5-4200	**Houston, Texas** **F. W. GARTNER CO.** 3805 Lamar Avenue Tel. Atwood 5338

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F. O. B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)

All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1 Lengths up to 20 ft.

(Prices in italics)

	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh	LONG LEAF Y. P. Merchantable grade up to 20 ft. 2x12 Rgh	LONG LEAF Y. P. Merchantable grade up to 20 ft. 12x12 Rgh	PLYWOOD Rail freight increment (See note for base price) ⅝"	PLYWOOD Rail freight increment (See note for base price) ¾"
Atlanta	‡ $75.00	$78.00	$69.00	$71.00	$75.00	$78.00	$77.00	.....	.....			$22.32	$27.24
Baltimore	* 90.00	94.00	75.00	75.00	80.00	85.00	110.00	.....	.....	$148.00	$148.00	25.92*	31.60*
	108.00g	*108.00g*	*110.50g*	*110.50g*	*110.50g*	*110.50g*	*116.50*	*$126.50*	*$126.50*				
Birmingham	† 83.00	83.00	70.00	80.00	83.00	85.00	95.00	.....	.....	115.00	155.00	21.78	26.58
	85.00	*85.00*	*77.00*	*80.00*	*78.00*	*79.00*	*85.00*	*85.00*	*85.00*	.....	.....		
Boston	104/108*a*	108/110*a*	98/101*a*	99/106*a*	100/108*a*	100/108*a*	.....	.....	.....	.....	.....	25.92*	31.60*
	95.00	*104/110*	*112.00*	*112.00*	*112.00*	*112.00*	*120.00*	*128.00*	*128.00*				
Chicago	**100.00	105.00	92.00	100.00	101/102	105/106	105.00	.....	.....	134.00	134.00	18.72	22.80
	108.00	*104/105*	*104/105*	*108.00*	*108/110*	*108/110*	*110.00*	*110.00*	*110.00*				
Cincinnati	* 99.00	105.00	88.00	98.00	105.00	110.00	122.50	.....	.....	145.00	145.00	21.78	26.58
	116.00	*116.00*	*118.00*	*118.00*	*118.00*	*120.00*	*145.00*	*145.00*	*145.00*	.....	.....		
Cleveland	** 94.00	97.00	89.00	89.00	97.00	99.00	.....	.....	.....	.....	.....	22.20	27.12
	106.00	*106.00*	*108.00*	*112.00*	*112.00*	*112.00*	*124.00*	*124.00*	*124.00*				
Dallas	†† 78.00	80.00	69.00	58.00	59.00	59.00	98.00	.....	.....	108.00	98.00	18.72	22.80
Denver	* *Not in stock*		*153.00*	*132.00*	*131.00*	*130.00*	*143.00*	*158.00*	*168.00*	.....	.....	13.92	16.98
Detroit	‡ 108.00	112.00	102.00	110.00	114.00	115.00	.....	.....	.....	.....	.....	21.78	26.58
	105.25	*105.25*	*110.25*	*111.00*	*110.00*	*108.50*	*118.75*	*122.50*	*122.50*	.....	.....		
Kansas City	* 122.00	122.00	122.00	122.00	122.00	122.00	.....	.....	.....	.....	.....	16.56	20.16
	122.00	*122.00*	*122.00*	*122.00*	*122.00*	*122.00*	*147.50*	*157.50*	*157.50*	.....	.....		
Los Angeles	‡ *101.00*	*101.00*	*102.00*	*102.00*	*102.00*	*102.00*	*120.00*	*130.00*	*120.00*	.....	.....	16.61*ab	20.25*ab
Minneapolis	# *130.00*	*130.00*	*135.00*	*135.00*	*135.00*	*135.00*	*150.00*	*150.00*	*150.00*	.....	.....	16.56	20.16
Montreal	ab85.00	90.00	85.00	85.00	90.00	100.00	.....	.....	.....	.....	.....	.....	.....
	175.00	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*170.00*	.....	.....	.....	.....
New Orleans	† 100.00	100.00	92.50	85.00	90.00	94.00	118.00	.....	.....	148.00	140.00	18.72	22.80
	† *100.00*	*102.00*	*103.25*	*101.25*	*101.25*	*99.50*	*122.00*	*122.50*	*117.00*	.....	.....	.....	.....
New York	‡ 108/112	112/116	105/110	112*e*/117*	115/120	120/125	150/160	.....	.....	210/240	210/240	25.92*	31.60*
	.....	.....	*Range from $120.00 to $125.00*				*135/150*	*149/155*	*149/155*	.....	.....	.....	.....
New York	** 95.00	97.00	81.00	94.00	97.00	99.00	130.00	.....	.....	.....	.....	.....	.....
	97.00	*97.00*	*108.00*	*106.00*	*106.00*	*106.00*	*116.00*	*128.00*	*128.00*	.....	.....	.....	.....
Philadelphia			**Range from $114.00 to $127.00**				114/127	.....	.....	200/210	200/210	25.92*	31.60*
			Range from $125.00 to $150.00				*130/140*	*150.00*	*150.00*				
Pittsburgh	††		**Range from $90.00 to $95.00**			100/110	100/110	.....	.....	100/110	115/125	22.56	27.48
			Range from $100.00 to $110.00			*110/120*	*110/120*	*140/155*	*145/155*	.....	.....		
St. Louis	*fc*116.00*e*	119.00*e*	103.00*d*	115.00*e*	117.00*e*	124.00*e*	.....	.....	.....	.....	.....	18.72	22.80
			127.00e	*132.00e*	*123.00e*	*134.00e*	*180.00e*	*180.00*	*180.00*	.....	.....		
San Francisco	*A*‡ *68.00*	*68.00*	*70.00*	*77.00*	*77.00*	*74.00*	*81.00*	*82.50*	*85.00*	.....	.....	12.28*a*	14.91*a*
Seattle	† *77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	.....	.....	.....	.....

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL., 1. Retail, LCL, at yard. *f* Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd.

LUMBER: **Bold Face type, Southern Pine.** *Italics. Douglas Fir.* *a* Spruce *b* Tax exempt. *c* 5M lots. *d* 8–12 ft. lengths. *e* 8–16 ft. lengths. *f* 18 ft. or under. *g* No. 1 common. *h* 8 ft. lengths. *k* No. 3 common *l* 8–10 ft. lengths. *n* 1¼ *cl*, 1½ *#2* & 1⅝ *#3*.

A Rail freight rate from Northwest mills to San Francisco are $11.50 to $15.50 per M ft bm. From Northern Calif. mills $9.00 by rail $12.00 by truck to yard with surfaced stock $2.00 to $3.00 less.

PLYWOOD: Plyform grade Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on 1", $176.00; on 1", $201.00. Exterior plyform ⅝" $196.00, ¾" $223.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. *a* Lower rate by water shipment. *b* 50,000 lb. minimum.

* Incl. new freight rates. Rates for other cities not avail. as we go to press.

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS: Discounts from jobbers list, Feb. 1, 1950*a* Single or Double Thickness A quality	WINDOW GLASS: Discounts from jobbers list, Feb. 1, 1950*a* Single or Double Thickness B quality	EXPLOSIVES: Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*	
Atlanta	79%	80%	$0.2315	
Baltimore	70–10%	78–10%	.2315	
Birmingham	83%	83%	.1790	
Boston	79–10%	79–10%	.2315	
Chicago	78%	78%	.2315	
Cincinnati	78%	78%	.2315	
Cleveland	78–10–10%	78–10–10	.2715	
Dallas	75%	75%	.2390	
Denver	81–5%	81–5%	.2365	
Detroit	78–10–10%	78–10–10%	.2315	
Kansas City	80–10%	80–10%	.2365	
Los Angeles	75%	80%	.2340	
Minneapolis	78–10%	78–10%	.2365	
Montreal	40–5%*bc*	40–10–5%*b*	21.60*hs*	Price of 60% Ammonia Gelatin is $0.0125 per lb. higher than 40%
New Orleans	78%	77%	.2365	
New York	82–10%	82–10%	.3975*g*	
Philadelphia	78%	80%	.2315	
Pittsburgh	82%	82%	.2040	
St. Louis	80–10%	80–10%	.2365	
San Francisco	70%	70%	.2315	
Seattle	75%	78%	.2340	

Glass: a Jobbers' list price per box, 14 x 20, as, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b* Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. *c* Single thickness.

Explosives: * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g* In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per trip. *h* F.o.b. city per 100 lb. forcite, 40%. Forcite 60%, $23.35. *s* F.o.b. Beloeil (near Montreal).

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.179	$0.2115	$0.2315
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.184 – 1915	.2165– 224	.2365– 244
Rocky Mtn. States	.184 – 1965	.2165– 224	.2365– 249
Pacific N. W. States	.1815– 194	.214 – 2265	.234 – 2465
Pacific S. W. States	.179 – .1865	.2115– .214	.2315– .2365

PILES, TIES F. O. B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail Pine*	By Rail Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.51	.....
12-in. — 2-ft. from butt	6-in.	50 to 59-ft.	.54	.....
12-in. — 2-ft. from butt	6-in.	60 to 69-ft.	.58	.....
12-in. — 2-ft. from butt	6-in.	90 to 100-ft.	.....	.....
13-in. — 3-ft. from butt	8-in.	91 to 100-ft.	.....	.....
14-in. — 2-ft. from butt	6-in.	50 to 69-ft.	.50/.68	.....
14-in. — 2-ft. from butt	6-in.	70 to 79-ft.	.78/.83	.93
14-in. — 2-ft. from butt	5-in.	80 to 85-ft.	.83/.93	.94
14-in. — 2-ft. from butt	5-in.	85 to 89-ft.	.....	1.00
14-in. — 2-ft. from butt	5-in.	90 to 100-ft.	.....	1.02

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:		6"x8"x8' Untr.	6"x8"x8' Tr.	7"x9"x8'6" Untr.	7"x9"x8'6" Tr.
Boston	Oak	..... *s*	.....	.....	.....
	Pine	..... *s*	.....	.....	.....
New York	S. L. Sap Pine	$2.35	$4.35	$3.45	$5.45
	Mixed Oak	3.10	4.63	3.70	5.95
Birmingham	Hardwood	2.40	3.88*a*	2.85	4.58*a*
Chicago	Red Oak	.....	4.00*a*	.....	5.00*a*
Los Angeles	Douglas Fir	.....	.....	.....	.....
	Redwood	.....	.....	.....	.....
Philadelphia	Red Oak	2.60	3.95	3.45	5.10
St. Louis	White Oak	3.04	.....	3.85	.....
	Red Oak	2.94	3.60*a*	3.67	4.68*a*
	Sap Pine or Cypress	3.41*a*	.....	4.44	.....
San Francisco	Douglas Fir	2.20*e*	3.25*ef*	2.92*bf*	4.30*ef*
Montreal	Birch or Maple	..... *h*	..... *h*	..... *h*	..... *h*

Tr.— Treated; Untr.— Untreated. *a* Creosoted. *b* 7" x 9" x 8'. *c* Empty cell. *e* Green. *f* F.o.b. cars. *h* No constant price available. *s* Not available.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb.	$6.00
Chlorine cylinders, liquid, per lb. f.o.b. works	.0875
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	25.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb.	2.20
Soda ash, 58%, in paper bags, per 100 lb. dense	1.60
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.65
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	8.95

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED † Per M. lots of 2,000 pieces or over, 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK— Per M. in quantity Common backing	Straight hard	LIME— Per ton, In paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	$195.00	$207.50	$247.50	$327.00	$342.00	$381.50	$27.38	$27.38	$19.00	$17.50	$17.50
Baltimore	183.00	195.00	366.00	415.00	541.00	618.00	36.00*k*	41.00*k*	30.00	21.00	.....
Birmingham	118.00*p*	128.00*p*	236.00*p*	283.00*p*	.....	.....	23.50*ff*	28.50*gg*	26.37	17.10	.....
Boston	196.00†	209.00†	392.00†	383.25†	.....	.....	34.50*p*	37.50*p*	30.00†	28.00†	. .
Chicago	135.00	145.00	280.00	... ..	.....	... ..	23.00	25.00	30.80	26.00	...
Cincinnati	185.00*j*	195.00*j*	340.00*jdd*	.....	.....	.....	34.50*j*	46.00*j*	26.37*j*	24.62*j*	.....
Cleveland	172.00**	183.00**	.....	.....	.....	.....	32.00	32.00	25.50	23.50	31.00*ee*
Dallas	.....	118.00	.....	.....	.....	.....	19.75	35.25	32.00	21.80	.....
Denver	.....	.....	.....	.....	.....	.....	34.00	40.00	34.80*bb*	28.00*bb*	34.00*bb*
Detroit	127.75	136.25	255.55	.....	317.25	362.60	34.90*cc*	33.30*cc*	32.00	30.00	.....
Kansas City	115.50	122.50	245.00	245.00	303.50	367.00	26.00	26.00	30.50	24.50	27.00
Los Angeles	*r*	*r*	*r*	*r*	*r*	*r*	21.00§	.....	34.00	34.00	35.00
Minneapolis	171.50*p*	192.50*p*	386.00*p*	192.50*wp*	.....	.....	32.00*xp*	36.00	37.00*bbc*	28.00*bbc*	38.00*bbdc*
Montreal	150.00*aq*	162.50*au*	300.00*au*	.....	.....	.....	31.00	41.50	34.80	32.50	24.60*u*
New Orleans	170.00	170.00	310.00	380.00	.....	.....	31.00	.....	.....	20.00	20.00
New York	138.70*h*	147.90*h*	203.40*eh*	221.90*hn*	.....	.....	35.00	.....	36.00	32.00	.....
Philadelphia	126.30	134.80	252.60	302.74	361.35	455.74	30.00	33.00	36.00	21.50	.....
Pittsburgh	112.00	117.00	189.00	216.00	279.00	317.00	32.00	42.00*y*	25.00	23.00	2.97*m*
St. Louis	138.00*cc*	158.50*cc*	313.00*cc*	.....	351.00*cc*	.....	40.00*al*	36.25*s*	.85*aaa*	.65*aaa*	1.10*aaspes*
San Francisco	156.85*a**	177.10*a**	235.30*dda**	.....	.....	.....	37.00	.....	26.60	26.60	2.65*m*
Seattle	175.00*cc*	190.00*cc*	.....	190.00*ccw*	.....	.....	39.00*s*	49.00*s*	37.50*shh*	1.45*t*	3.90*mhh*

† F.o.b. yard Roxbury. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 x 12 in.-3 cell. *d* Pulverized hot. *e* 5%, 10th following month. *g* 5½ x 8 x 12. *h* F.o.b. trucks, job-site N.Y.C. *j* Truck load or over. *k* $1.00 discount *l* Red face. *m* Per bbl., 180 lb. *n* 7½ x 7½ x 12. Speed title. *p* Truck lots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5½ x 8 x 11¼. *u* Tax exempt. *v* Sand lime. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. 80% common. *gg* Select. *hh* LCL. § F.o.b. yard. ‡ Per 60 lb. sack, no incr., ton price no longer quoted. ** Only 1 plant producing quotes on warehouse delivery, previous quotes were truck delivery. * F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry *a*	WHITE LEAD Per 100 lb. in 100 lb. cases in oil *w*	READY-MIXED PAINT — per gal., drums Graphite *b*	Aluminum *c*	Ferric Oxide *d*	ROOFING SUPPLIES Carload lots f.o.b. factory— Rolls, slate surfaced, 85-90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$18.00	$29.175	$1.75	$2.70	$1.65	$2.06‡	$2.06‡	$2.06‡	$1.00‡	$36.00‡
Baltimore	17.75	28.80	2.65	4.10	3.22	2.50	4.17	4.17	.42	37.00
Birmingham	18.00	29.175	3.90	3.40	.....	2.80	2.75	2.75	.....	40.50*ee*
Boston	17.75	28.80	.....	...	.....	2.67*qq*	2.56*oq*	2.56*oq*	.42*g*	42.00*g*
Chicago	17.75	28.80	...	. .	...	2.73‡*u*	3.04‡*o*	3.04‡*o*	38.00‡*bbr*	43.00‡
Cincinnati	17.75	28.80	.....	.....	.....	2.50	2.50	2.50	.42*y*	42.36
Cleveland	17.75	28.80	2.60*pqqA*	3.40*qqB*	2.78*qqC*	2.50*q*	2.50*o*	2.50*o*	.39*y*	43.20*hh*
Dallas	18.00	29.55	.....	4.05	.....	3.50*q*	3.75*o*	4.35*o*	.36	46.00
Denver	18.25	29.30	3.07	5.15	2.87	3.25*o*	2.40*o*	2.40*o*	.43*ff*	42.00
Detroit	17.75	28.80	2.35	3.40	2.50	2.50	2.30*f*	2.30	.51	40.00
Kansas City	17.75	28.92	.....	2.71*ps*	2.65	2.50	2.50*o*	2.50*o*	.313*s*	48.00
Los Angeles	17.75	29.05	3.30	4.50	4.20	2.97	2.01*e*	*l*	.44	*l*
Minneapolis	17.75	28.55-28.92	.....	.....	.....	2.40*idd*	2.50*hidd*	2.50*hidd*	.36*idd*	37.00*v*
Montreal	.....	20.70	2.95*Dff*	4.05*Eff*	3.35*Fff*	4.82*t*	3.63*f*	3.65*f*	1.24*kt*	3.78*kt*
New York	17.75	28.80	.....	.....	.....	2.50	2.50*o*	2.50*o*	.36*z*	37.00
Philadelphia	17.75	28.80	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	17.75	28.80	2.65	2.65	3.15	2.50	2.87*o*	2.87*o*	.40	42.00
St. Louis	17.75	28.80	.....	.....	.....	2.50	2.50*h*	2.50*h*	.31*y*	38.00
San Francisco	17.75	29.05	2.40	.....	3.40	2.95	4.00*aa*	.....	.49	.....
Seattle	17.75	29.30	2.96*m*	2.80*m*	.....	3.58*mqcc*	3.05*hmcc*	.....	.59*mcc*	52.00*jmcc*

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U. S. War Dept. Spec. 3-49A. *c* ASTM Spec. D266-31. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *g* F.o.b. yard Roxbury. *h* Per roll. 65 lb. *i* Net carload lot prices: Minneapolis and vicinity. *j* Asphalt pitch. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *n* Per 60-lb. *o* Per 90-lb. roll. *r* F.o.b. factory chicago. *s* 466 Med. *t* Federal tax included. *u* Per 90 lb. square. *v* Per ton. *w* Price to large paint contractors is $1.25 less. *x* Mineral surfaced. *y* 55-gallon container. *z* Drums. *aa* Approximate cost per 100 lbs. *bb* Roofers coating and cement. Price per ton. *cc* LCL, truck delivery. *dd* 2% cash discount. *ee* Asphalt, in 100 lb. package. *ff* 5-gal drums. *gg* F.o.b. factory. *hh* Incl. freight. *A*. TTP 27. *B*. TTA 468A. *C*. TTP 31A. *D*. Std Black. *E*. Ready-mixed. *F*. Over 80% ferric oxide.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Brick-layers	Car-penters	Struct. Iron Workers	Hoisting Engineers	Plas-terers	Electrical Workers	Steam-fitters	Common Labor— Building	Heavy Const.
Atlanta	$2.75	$2.20	$2.335	$2.25	$2.75	$2.60	$2.75	$1.05	$1.05
Baltimore	3.20*p*	2.58	3.05	2.85/3.00	2.75	2.75	2.80*a*	1.49	1.49
Birmingham	2.75	2.34	2.50	2.06	2.42	2.60	2.65	1.10	1.20
Boston	3.06*a*	2.625	2.82	2.80	2.97*a*	2.80	2.795	1.93	1.93
Chicago	3.25*k*	2.70	2.80	2.65	3.235*n*	3.09*n*	2.75	2.05*m*	2.05*m*
Cincinnati	2.90	2.475	2.665	1.825/2.85	2.75	2.70	2.80	1.65	1.65
Cleveland	3.00	3.075*ef*	3.075*e*	3.00	2.97	3.075*e*	2.97	2.35	2.35
Dallas	3.4375	2.3375	2.50	2.475	3.437	2.75	2.6125	1.20	1.35
Denver	3.00*w*	2.35*w*	2.35*w*	2.48*w*	3.30*w*	2.75	2.65	1.575	1.575
Detroit	3.00	2.75	3.00*m*	2.90	3.005*l*	3.00	2.75*m*	2.00	2.00
Kansas City	3.50	2.365*w*	2.68*x*	2.365/2.61*x*	3.025*w*	2.66	2.75	1.88*s*	1.88*s*
Los Angeles	3.00*w*	2.35*w*	2.70	2.30*w*	3.125*w*	2.75	2.625*w*	1.75*w*	1.75*w*
Minneapolis	2.90	2.40	2.57	2.35	2.75	2.71*n*	2.70	1.67	1.67
New Orleans	2.70*w*	2.06*w*	2.45*w*	2.325*w*	2.375*w*	2.50*w*	2.45*w*	1.10*w*	1.10*w*
New York	3.5488*w*	3.096*n*	3.348*n*‖	3.348*n*	3.80*A*	3.597*aa*	3.2886*p*	1.90	1.90‖
Philadelphia	3.464	2.90	3.32*j*	3.00/3.15*ww*	3.075*k*‖	3.28/3.53*u*	2.825*k*‖	1.75	1.90
Pittsburgh	3.25	2.75	2.75	2.825	2.75	2.75	2.80	1.80	1.80
St. Louis	3.55*c*	2.90*Ae*	2.75	2.97*e*	3.00	2.887*e*	2.75	1.97*e*	1.97*e*
San Francisco	3.250	2.45*w*	2.70*w*	2.41*w*	3.125*w*	3.00	2.75	1.70*w*	1.70*w*
Seattle	3.30	2.51	2.71	2.64	3.00	2.65	2.75	2.11	2.14
Montreal*	1.90	1.70	1.80	1.60	1.90	1.80	1.85	1.20	1.20

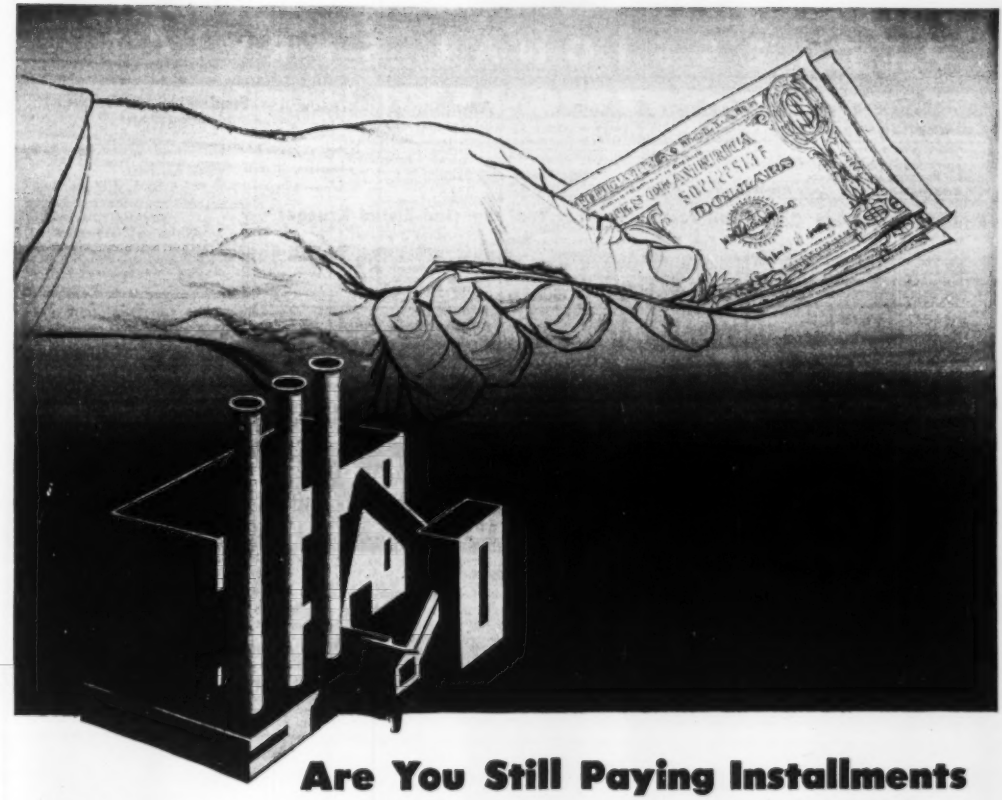
a 6 hr. day. *b* 7 hr. day. *c* Incl. 3% vacation stamp fund for bricklayers; 4% for electricians plus 1% N.P. * Cost of living bonus now included in basic wages. *e* Includes 5¢ per hr. tool replacement. *h* $2.45 homes and housing. *j* 5¢ vacation fund. *k* Incl. 3½% welfare. *l* Incl. 9¢ hr. welfare. *n* Incl. 7½¢ hr. welfare fund. *p* Incl. 4% vacation fund. *m* Incl. 5¢ hr. welfare ins. fund. *n* Incl. 6¢ hr. welfare fund. *o* Incl. 3% welfare fund. *p* Incl. 5% welfare fund and 3% pension fund. *r* Incl. 3% welfare fund and 20¢ pension fund. *s* Incl. 5% welfare and pension fund and 4% vacation fund. *u* Inc. 1% welfare fund. *w* Incl. 10¢ welfare fund. *w* Negotiating. *z* Await WSB appr. *A* Incl. 10¢ WF, 10¢ PF & 10¢ Vac. F.

MEXICO CITY PRICES

In Pesos, F.o.b. City		April '52	May '52
Common Wages—Building (8 hr. day)	av. per hr.	83*	83*
Common Wages—Heavy Const. (8 hr. day)	av. per hr.	93*	93*
Skilled Labor Wages			
Carpenters (8 hr. day)	av. per hr.	2.25*	2.25*
Bricklayers (8 hr. day)	av. per hr.	2.25*	2.25*
Struct. Iron Workers (8 hr. day)	av. per hr.	1.50*	1.50*
Struct. Steel Shapes 3"-15" x 12 meters	per metric ton	1,111.01	1111.01
Reinf. Steel, Corr. Rods			
¼" x 11 meters	per ton	1,261.51	1261.51
⅜" x 11 meters	per ton	1,251.13	1251.13
½" x 11 meters	per ton	1,240.75	1240.75
⅝" x 11 meters	per ton	1,230.37	1230.37
¾" x 11 meters	per ton	1,230.37	1230.37
1" x 11 meters	per ton	1,230.37	1230.37
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	45.00	45.00
Rose Gravel	per tr. load	43.00	43.00
Cement, Std. Port. (Tolteca)	per ton	160.00	160.00
Lumber			
Mex. Sacred Fir (OYAMEL)	per M ft.	800.00	800.00
1st Class Pine	per M ft.	1200.00	1200.00
2nd Class Pine	per M ft.	980.00	980.00

* Increase by 1/6th—work 6 days, paid for 7 days.

ENR Skilled Average: (Bricklayers, Carpenters, Ironworkers): $2.808 **ENR Common Average:** $1.698



Are You Still Paying Installments On Equipment You Already Own?

When you've got the receipt, equipment's supposed to be yours. Yet many operators go right on paying "installments" . . . in heavy maintenance, high operating costs, production lags.

This sounds like the granddaddy of all blind alleys. Yet consider what *one* power station did:

Faced with "rat-holing" and high maintenance costs, this company solved *its* problem with a 1400-ton bunker, using monel-clad steel for the bottom six feet of the four bunker noses. This solved corrosion and abrasion threats, assured surface smoothness, ended packing of moist fines that lead to "arching" and "rat-holing".

RESULTS: steady feed, without vibrators or a stand-by man . . . smoother flow to direct-firing pulverizers . . . lower operating costs.

What makes this story significant is that it resulted from a progressive planning method followed by certain Equipment Builders.

This method coordinates the knowledge of leading engineers, designers, and materials suppliers. Each factor affecting performance is *thought out by a specialist in that field.* In such planning, you'll find these builders turning to Lukens for its knowledge of materials, as well as its wide range of low cost clad steels.

Even with new equipment hard to get, we know builders who often can help you get more profitable performance from what you have. For their names, write us today, explaining your need. Manager, Marketing Service, 513 Lukens Building, Coatesville, Pennsylvania.

LUKENS

LUKENS STEEL COMPANY

WORLD'S LEADING PRODUCER OF SPECIALTY STEEL PLATE • PLATE SHAPES • HEADS • CLAD STEELS

PROFESSIONAL SERVICES

Duval Engineering & Contracting Co.
General Contractors
FOUNDATION BORINGS
For Engineers and Architects.
Jacksonville, Florida

Rader Engineering Co.
Water Works, Sewers, Refuse Disposal, Ports, Harbors, Flood Control, Bridges, Tunnels, Highways, Airports, Traffic, Foundations, Buildings, Reports, Investigations, Consultations
1615 du'Pont Building Miami, Florida

Consoer, Townsend & Associates
Water Supply, Sewerage, Flood Control & Drainage, Bridges, Express Highways, Paving, Power Plants, Appraisals, Reports, Traffic Studies, Airports, Gas & Electric Transmission Lines.
351 East Ohio St., Chicago 11, Illinois

Faulkner & Orpin
Engineering Consultants
Civil, Mechanical and Electrical
Market Consultants, Technical Writing and Sewerage and Water
80 K Street Kings Terminal
South Boston 27, Mass. SO. 8-2903

Soil Testing Services, Inc.
Theo. W. Van Zelst Carl A. Metz
John P. Gnaedinger
Soil Borings Rock Coring
Engineering Testing of Soils
Soil & Foundation Reports
4520 W. North Ave. Chicago 39

Metcalf & Eddy
ENGINEERS
Investigations Reports Design
Supervision of Construction and Operation
Management Valuation Laboratory
1300 Statler Building, Boston 16

Ammann & Whitney
Consulting Engineers
Design — Supervision
Bridges, Buildings, Industrial Plants, Special Structures, Foundations, Airport Facilities, Expressways.
76 Ninth Avenue, New York 11, N. Y.
724 E Mason Street, Milwaukee 2, Wis.

Severud-Elstad-Krueger
Consulting Engineers
Structural Design - Supervision
Reports - Buildings - Airports
Special Structures
415 Lexington Avenue
New York 17, N. Y.

Albright & Friel, Inc.
Consulting Engineers
Water, Sewage and Industrial Waste Problems, Airfields, Refuse Incinerators, Power Plants, Industrial Buildings, City Planning, Reports, Valuations, Laboratory.
121 So. Broad St., Philadelphia 7, Pa.

Frederick H. Dechant
Consulting Engineer
Chairman of the Board,
Frederic R. Harris Inc.
Water Works, Industrial Wastes, Sewerage, Recovery Processes, Hydraulic Works, Gas Plants
Phila.: Fidelity Phila. Trust Bldg.
New York: 27 William St.

Inspecting and Testing

Johnson Soils Engineering Laboratory
Engineering design and construction tests; run from MOBILE LABORATORY UNITS at construction site. Field load bearing tests.
193 West Shore Ave., Bogota, N. J.
Bogota-Hubbard 7-4408

CLASSIFIED SEARCHLIGHT SECTION ADVERTISING

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)
$1.50 cents a line, minimum 3 lines. To figure advance payment count 5 average words as a line.
POSITION WANTED & INDIVIDUAL SELLING OPPORTUNITY undisplayed advertising rate is one-half of above rate, payable in advance.
PROPOSALS, $1.50 a line an insertion.

INFORMATION.
BOX NUMBERS count as 1 line additional in undisplayed ads.
DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).
EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED—RATE PER INCH:
The advertising rate is $17.10 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.
AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches —to a page. E.N.R.

NEW ADVERTISEMENTS Address New York Office, 330 W. 42nd St., N. Y. 36, for June 9th issue closing June 19th

WANTED
FOR FOREIGN ASSIGNMENT IN SAUDI ARABIA
2 YEAR CONTRACT
PREVIOUS FOREIGN EXPERIENCE PREFERRED

Public Works Program
Project Administrative Personnel
Superintendents
Assistant Superintendents
Chief Engineer, Civil

CIVIL ENGINEERING PERSONNEL
Cost Estimators
Municipal Planners
Water and Sewer Designers
Structural Designers
Draftsmen

ELECTRICAL ENGINEERS
Diesel Power Municipal Systems

Write Complete Qualifications to
ROY S. BRADEN
Personnel Director
MICHAEL BAKER, JR. INC.
Consulting Engineers & Constructors
Baker Building Rochester, Pa.

CIVIL ENGINEER

The Engineering Department of the City of Fort Lauderdale, Florida, has a vacancy for a graduate civil engineer. The duties are varied, covering all phases of office and field work. The present salary range goes up to $5200, and the starting salary will depend on the qualifications of the individual. Applications may be obtained from the Civil Service Department, City Hall, Fort Lauderdale, Florida.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

CHEMIST. WANTED For Municipal Filter Plant. Grade I New York State Health Department certificate or eligibility therefore necessary. Present salary range $3730-4090, subject to increase now under consideration. Submit full resume, stating education, experience, age and availability to T. B. Tyldesley, Superintendent, Water Department, Watertown, New York.

CITY MANAGER wanted by fast growing chartered City of Mountain View, California. Pop: 8000. Administrative experience in General Business, Engineering, Finance. Municipal or County work desirable. Fully history, references and salary in first letter. Martin J. Spangler, Mayor, 895 Castro St., Mountain View, Calif.

CONSTRUCTION SUPERINTENDENT to supervise construction of Sewage Disposal and Water Works Projects with Eastern firm. Must be thoroughly familiar with all phases of construction in connection with above mentioned projects. Furnish resume of construction experience and domestic habits. State salary expected. P-4434, Engineering News-Record.

DIRECTOR, SCHOOL Construction. The Montgomery County, Maryland, Board of Education requires services of experienced engineer to direct and supervise school building program. Must have Civil Engineer degree and considerable experience in administrative and supervisory work concerned with engineering planning and construction relative to large-scale building projects. Salary $7,000-$9,000 depending upon education and experience. Permanent position, non-political, opportunity for advancement, paid annual and sick leave. Write Board of Education of Montgomery County, Rockville, Maryland for details.

(Continued on the opposite page)

WANTED
Registered Civil Engineer. Man experienced in Highway maintenance and construction preferred. Write Chippewa County Road Commission stating experience and salary expected.
Chippewa County Road Commission
Sault Ste Marie, Michigan

Structural Steel Detailer
Real opportunity for man with at least 5 years experience in structural steel fabricating plant. This is not a defense job. Write for appointment.
RUMFORD STEEL PRODUCTS, INC.
P. O. Box 1211 Providence 1, R. I.

ENGINEER-SUPERINTENDENT — Medium sized sewer, water, pump station, and disposal plant contractor in Northern New Jersey has an opening for an experienced construction man thoroughly familiar with all phases of construction work. Must be able to estimate (quantity take-off through completion of formal bid), to organize and run a job from start to completion, and to supervise routine office work. This is an unusual opportunity for the right man both as to starting salary and future opportunity.
P-4257, News-Record, 330 W 42 St., N. Y. 36, N. Y.

Bridge Designers & Draftsmen
Good pay for qualified men. Opportunities for advancement. Also specification writers and squad leaders. Pleasant working conditions. Interesting projects. Apply in person, or write fully stating education and experience.
D. B. STEINMAN, Consulting Engineer, 117 Liberty St., New York 6, N. Y.

JR. CIVIL ENGINEER
California opportunities with State Division of Highways for CE graduates and non-graduates with two years' experience. $325 month to start, raise in six months. Write today for full information.
STATE PERSONNEL BOARD
1015 L Street Sacramento, Calif.

Permanent Positions Open to

ENGINEERS

. . . after training at full-time pay . . . as

Consultants in

Fire Protection Engineering

to top U. S. and Canadian industry. Usual pension and other benefits. Excellent opportunities; fast-growing engineering organization.

Write complete qualifications to:
P-2807, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

SALARIED POSITIONS $3,500—$35,000

We offer the original personal employment service (established 42 years.) Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars.

R. W. BIXBY, Inc., 272 Dun Bldg., Buffalo 2, N. Y.

POSITIONS VACANT

(Continued from the opposite page)

ENGINEER-ESTIMATOR for Institutional and Commercial Building contractor's office. Write: Contractor, Box 1013 Red Bank, New Jersey, Stating experience and salary expected.

ENGINEER, EXPERIENCED in design and/or construction of water works, sewerage systems, water treatment, sewage treatment plants, surveying. State age, experience, salary requirements, references and when can report. P-4394, Engineering News-Record.

GENERAL MANAGER Construction—well established progressive company, operating in most states, offers excellent opportunity for qualified man to assume position of top responsibility. We require extensive experience in structural steel erection, thorough knowledge of equipment, ability to accurately estimate field erection costs, ability to organize and supervise several projects. Engineering degree preferred. Forward resume to P-4337, Engineering News-Record.

GENERAL SUPERINTENDENT — Marine and Heavy Construction. Permanent position. Location Southern New England. P-3974, Engineering News-Record.

STRUCTURAL STEEL Detail Draftsmen and Checkers. All types of Structures. Vacation, group insurance, good working conditions. Only top quality men. Send complete written information. Bristol Steel & Iron Works, Inc., Bristol, Virginia-Tennessee.

WANTED—GRADUATE Civil Engineer, some experience in the structural and housing field preferred, by long established engineering promotional and educational organization, to be a representative in the southern New Jersey area. Age 25 to 40. Give resume of education, engineering experience and salary requirements in reply. P-4330, Engineering News-Record.

WANTED IMMEDIATELY—Civil Engineer experienced in computing property line data in engineering office, for old established firm near New York city. Steady work for the right man guaranteed. Write full qualifications, age, references and salary requirements. P-4201, Engineering News-Record.

WANTED—MALE—Structural Steel Detailer—Experienced—1st Class—Permanent position—Excellent Opportunity for Right Party. The New England Iron Works, Inc., P.O. Box 955, New Haven, Connecticut.

WANTED: PROJECT manager for concrete and earth fill dam, approximately $6,000,000. Must be able to supervise all phases of the work. P-4435, Engineering News-Record.

SELLING OPPORTUNITY OFFERED

SALESMAN TO Call on Contractors, to sell machinery. Prefer man with some retail experience, preferably as factory representative. Send full details on age, schooling, positions held, etc. SW-4444, Engineering News-Record.

EMPLOYMENT SERVICE

WANTED—ENGINEERS, Designers, Draftsmen-Structural, Piping, M.E., C.E., E.E. and Industrial, also Teachers and Chemists. Cleveland Engineering Agency, 2132 E. 9, Cleveland.

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-first year. Write today.
WILSON Engineering Corp.
College House Offices - HARVARD SQUARE, CAMBRIDGE, MASS.

CONSTRUCTION MANAGEMENT
Superintendents and Project Managers Training Course
All instruction by mail. Send today for sample lesson and complete details
GEO. E. DEATHERAGE & SON
5 E. Preston St. Baltimore 2, Maryland

POSITIONS WANTED

ARCHITECT OR Engineers construction superintendent available. Excellent references. PW-4371, Engineering News-Record.

BUILDING CONSTRUCTION Executive thoroughly experienced estimating, buying subcontracts, materials, etc., solicitation of new business and field management. PW-4393, Engineering News-Record.

CIVIL ENGINEER—advanced degree—6 years structural design experience—desires position with reputable firm in active construction work. Eastern area preferred. PW-4421, Engineering News-Record.

CIVIL ENGINEER, 26, B.S. in C.E.; Registered P.E.; 4 years experience design, drafting and field in structures, foundations, hydraulics; prefer Western U. S. or Canada. PW-4450, Engineering News-Record.

CIVIL ENGINEER, experienced administration, costs, planning, organization; 43, graduate, registered, M.A.S.C.E.; available early fall for executive position with consultant, contractor, or on corporation engineering staff. PW-4451, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT and Engineer, 18 years practical experience covering all types of buildings and heavy construction, good organizer, knows costs, sober and reliable, must be permanent, prefers midwest, southwest or west location, available immediately. PW-4411, Engineering News-Record.

EQUIPMENT SUPERINTENDENT, age 40. Twenty years experience in Heavy Construction. Diesel and Allied Equipment, Marine and Heavy Earth Moving. Desires position, Domestic or Foreign. PW-4166, Engineering News-Record.

EXECUTIVE CONSTRUCTION Engineer, long experience, estimates and supervision heavy construction including foundations, dams, docks, tunnels, especially difficult subaqueous structures. PW-3497, Engineering News-Record.

GENERAL SUPERINTENDENT 52, with a thorough experience in that capacity, on public, commercial and industrial work, including school, hospitals, housing, power plants and government projects. Concrete and masonry specialist, with ability to minimize overhead and construction costs. References. PW-4343, Engineering News-Record.

GRADUATE CIVIL Engineer, Age 30. Office superintendent for large General contractor. 7 years experience. Desires position with minimum salary $10,000.00 per year plus bonus arrangement. Prospectus and references upon request. PW-4449, Engineering News-Record.

GRADUATE CIVIL Engr, 2½ yr. experience in field, field-office coordination, and public relations wants long term salaried employment in one locality or with firm acknowledging future possible advancement. Had little design experience and some project-type sales. Wish to settle west of Denver and not travel over one week/month. PW-4433, Engineering News-Record, 68 Post Street, San Francisco 4, Calif.

HEAVY CONSTRUCTION Superintendent, extensive experience on rock blasting, earth moving and concrete. PW-4452, Engineering News-Record.

SENIOR STRUCTURAL Engineer, graduate C.E. registered with National Bureau, licensed in 3 states, over 25 years experience in design and construction of industrial buildings, bridges, hydro-electric developments, heavy engineering structures; office and field supervision. 10 years foreign service, knows languages. Desires permanent connection with growing concern. PW-4364, Engineering News-Record.

POSITIONS WANTED

SANITARY ENGINEER: A.M. A.S.C.E., licensed, advanced degree. Progressive experience in design and operational phases of waste disposal, pollution control, water supply and water treatment. PW-4432, Engineering News-Record.

SUPT.-GEN. Supt. 30 years thorough experience in heavy construction including highways, heavy excavations, pile driving, bridges, airports, flood control. Mass concrete construction. Capable organizer and producer. Highest references. Available at once. PW-4327, Engineering News-Record.

FOR SALE

Swimming pool forms
in good condition, size 25 x 60 feet, $400. Write F. E. Mars, The Plaines, Virginia, or call Marshall, Virginia, 4541 or 4543.

• WANTED •
INDUSTRIAL PLANTS
Will arrange thru purchase of (1) Capital stock, (2) Assets, (3) Machinery and equipment, whole or in part—Personnel usually retained, strict confidence. **Box 1351** Church St. Sta., New York 8, N. Y.

WANTED
Locomotive
Plymouth Industrial Type 2 AL—3 Ton—24 gauge
HYPER-HUMUS COMPANY
P. O. Box 263 Phone 300 Newton, N. J.

NEW G M-6-71 DIESEL ENGINES FOR:

- Allis Chalmers Tractor
- Letourneau Roadsters
- Euclid Dumps

Complete with all accessories except electrical. U. S. Surplus. Warranted, Perfect condition.

Full Price F.O.B., Pgh.
$1850.00

ALLOWANCE FOR YOUR OLD ENGINE

FORBES MOTOR COMPANY
P. O. Box 8660
Pittsburgh 21, Penna.
Phone: Valley 4-0100

FOR SALE
NORTHWEST MOBILE CRANE
Model 41, gasoline powered. Serial #6401 complete with 44 ft. crane boom. Suitable for 1 cu. yd. clam-shell bucket—Mounted on 6-cylinder Mack Chassis—Mott-Haven mounting. Completely rebuilt. $12000.00.
BOX 495, CHESTER, PA.

FOR SALE
LIMA PAYMASTER
3 Way Combination. ¾ Clamshell. 45' Alloy Boom. Actual Operation 2-½ yrs. One Private Owner. EXCELLENT.
M. B. BAUBACH
5017 Newfield Ave., Cincinnati 37, Ohio
Phone REdwood 3875 & 4020

FROM THIS GATE COMES THE
WORLD'S BEST REBUILT
CONSTRUCTION EQUIPMENT!
When L. B. Smith rebuilds your construction equipment, you get the finest rebuilding job possible. 150,000 square feet of working space, filled with the most modern equipment, manned by men who are experts in their profession. Rebuilding is a profession, one requiring the utmost in skilled knowledge. This knowledge, and this equipment, is at your disposal.
DO YOU HAVE A REBUILDING PROBLEM?
WE INVITE YOU TO CONTACT US TODAY.
L. B. SMITH INC.
CAMP HILL, SUBURB OF HARRISBURG, PA.

L. B. SMITH INC.

New and Used Equipment News

Prepared Monthly by Ed Woolford at Camp Hill, Pa.

VOL. 1 NO. 3

AIR COMPRESSORS

Gardner-Denver 500 cu. ft. diesel, new condition.
Ingersoll-Rand 105 cubic foot, Waukesha gasoline power, on two rubber tires.
Schramm 105 cubic foot gas powered compressor on 4 steel wheels.
Pennsylvania 12" x 10" class 3A single cylinder, 355 cubic foot P.D., flat belt driven 50 HP slip ring motor.
Worthington two-stage, water-cooled, vertical 250#, 60 CFM, new condition.
Paving breakers, jackhammers, wagon drills, tie tampers.

QUARRY EQUIPMENT & BINS

4024 Cedarapids roll, rebuilt.
Cedarapids Rock-It plant with 2025 jaw, 3033 mill. New.
Cedarapids 1236 Model 6C plant, new.
4033 Cedarapids Hammermill, rebuilt.
1030 Good Roads. Reconditioned.
10x7 Allis-Chalmers Blake type jaw crusher.
#1 Cedarapids Kubit impact breaker.
4' x 6' Kennedy Van Saun single deck.
3' x 6' Kennedy Van Saun triple deck.
2—15 cu. yd. Cedarapids sand drags, new.
16" x 90' bucket elevator.
60-ton, 2-compartment, 8'x18' storage bin with clamshell gates.
100-ton, 2-compartment, 13'x23' storage bin with clamshell gates.
Special bins to your specifications.
Conveyors—18"—24"—30"—36". Also belt.

TRUCKS—TRAILERS

1½-ton Ford with any body.
2½-ton GMC, rebuilt.
2000-gallon tanks on semi-trailer mounting.
New and rebuilt dump bodies.

GENERATORS & LIGHT PLANTS

1½ KW to 125 KW, alternating and direct current gasoline and diesel powered.

SHOVELS—CRANES

Lorain L-50, 1-yd. diesel. New condition.
Brownhoist 1-yd. gas shovel & crane.
Lorain TL-20 diesel powered ½ yd. shovel & hoe.
Link-Belt LS50 gas ½-yd. shovel & hoe.
P&H Model 150, ½-yd. crane.

SHOVEL & CRANE ATTACHMENTS

Lorain TL-20 shovel attachment.
Lorain L-41 Chain Crowd Shovel Attachment. Rebuilt.
Lorain 40 Hi-Lift shovel attachment.
P&H 203 shovel attachment.
Chain crowd Lorain 30A shovel attachment.
Bucyrus-Erie 1½-yd. rock bucket.
McCaffrey Model 648 for 1¼ to 2-yd. crane.
McCaffrey Model 636 for ¾-yd. to 1-yd. crane.

Backhoe Buckets & Attachments

Lorain TL-25 hoe attachment, new.
Lorain 30 hoe attachment complete.
¾-yd. Lorain, 40, LBS #6105. 44" cutting width.
26" outside width solid bottom type LBS #4377, good condition.
¾-yd. Amsco 40" cutting width, LBS #8101.

CLAM—DRAG—SCRAPER BUCKETS

LIFTING MAGNETS

2—45" Ohio lifting magnets, rebuilt.
1—36" ECM lifting magnet, rebuilt.

SHOVEL DIPPERS

Lorain 41, ¾-yd. LBS #8600, rebuilt.
New Lima 1-yd. Amsco, LBS #2295.
Bucyrus-Erie 1¼-yd. gas air, LBS #3782, fair.
Lorain 75B, 1½-yd. manganese bucket, LBS #8538.
Lorain 75B, 1¼-yd. extended lip, 1¾-yd. LBS #2260.
Pettibone-Mulliken 2-yd. Lorain 82 or 820, manganese, LBS #5361.
Pettibone-Mulliken 2-yd. for 3500 Manitowoc LBS #5783.
Esco 2½-yd. cast weld dipper with bail & teeth.

CONCRETE ROAD BUILDING & MISCELLANEOUS CONCRETE HANDLING EQUIPMENT

Concrete Equipment

Jaeger type "L" double screed finisher, 10½'-12½', rebuilt.
Heltzel 10'-12' finisher, rebuilt.
Blaw-Knox gas-electric finisher, 10½'-12½', rebuilt.
2 Koehring 10'-12' finishers, rebuilt.
1220'—Heltzel 9"x8" road forms with stakes.
R.B. Fine Grader for 21' width, rebuilt.
Cleveland formgrader, new 1944, rebuilt.
Corr formgrader, new 1944, rebuilt.

TRACTORS

1—Ford Dearborn rubber tired with hyd. front end loader and hoe attachment.
1—TD9 International diesel with 1 yd. Loadover.

WELL DRILLS & TOOLS

Sanderson-Cyclone #42 well drill, new.
Sanderson-Cyclone #44 well drill, new.
Bits—Stems—Bailers—Sockets—Etc.

PUMPS

New Layne Bowler type 18 deep well pump with right angle gear drive. 3000 GPM at 120' TDH.
Used and rebuilt pumps, all sizes, gasoline, electric or diesel.

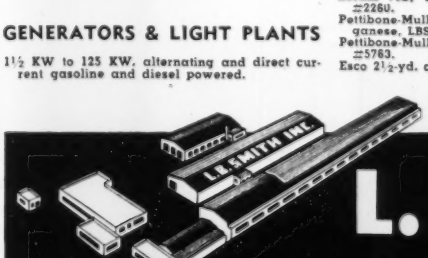
GRADERS

Austin Western 77 tandem drive, scarifier, 12' blade, gas power, hydraulic controls.

GASOLINE AND DIESEL ENGINES

Buda, Hercules, Hill diesels, rebuilt.
New and rebuilt Murphy diesels, ME-4 & 48.
GM 6 and 12 cylinder diesels, practically new.

***Phone* HARRISBURG, PA. 7-3431**



L. B. SMITH INC.

CAMP HILL, SUBURB OF HARRISBURG
BRANCH OFFICES: PHILADELPHIA, PA. • SYRACUSE, N.Y.

DIESEL POWER

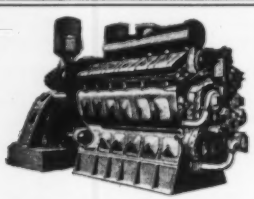
FOR

IMMEDIATE SHIPMENT

UNIT CAPACITIES—10 TO 1875 KVA

A.C.—50 AND 60 CYCLES

VARIOUS VOLTAGES



A PARTIAL LISTING OF OUR INVENTORY

KW	Make	Model	HP	RPM	KW	Make	Model	HP	RPM
1136	Fairbanks Morse	38D	1600	720	320	Enterprise	DSG-6	560	450
1100	General Motors	16-278A	1600	720	300	General Motors	8-268A	450	1200
750	General Motors	12-567	1080	720	200	General Motors	6-268A	340	900
500	General Motors	8-278A	750	720	160	General Motors	4-268A	150	1200
500	General Motors	8-567	720	720	100	Worthington	HR-5	150	600
350	Baldwin	VO-6	510	450	60	General Motors	6-71	90	1200
320	Buckeye	8D	480	600	30	International Harvester	UD-14	45	1200

D.C. UNITS ALSO AVAILABLE

A. G. SCHOONMAKER COMPANY, INC.

DIESEL DIVISION, 50 CHURCH ST., NEW YORK 7, N. Y.

SALE OR RENT

1—TD-9 Front-end Loader 1950
1—25-Ton Link Belt HC-90 Truck Crane 120' Boom
1—20-Ton Bay City Truck Crane, 80' Boom, 15' Jib
1—2 Yd. Koehring 803 Crane
1—Model 3500 Manitowoc Dragline
1—35-Ton Davenport Diesel Electric Loco.
2—No. 6 and 80-D Northwest Shovels
1—D-8 2U with FP 17 Yd. Scraper—New 1950—1800 hrs.
1—Northwest 25 Shovel Attachment
1—10-Ton Stiff Leg Derrick
1—40-Ton Orton Diesel Loco. Crane
1—40-Ton Industrial Brownhoist Oil Fired Loco. Crane, New 1943

B. M. WEISS CO.

Girard Trust Co. Bldg. Phila. 2, Pa.
Rittenhouse 6-2311

NEW AND REBUILT
STORAGE BATTERY
LOCOMOTIVES

1½ to 10 Ton — 18" to 56" Track Gauge
GREENSBURG MACHINE CO.
Greensburg, Penna.

- COMPRESSORS -

PORTABLE — STATIONARY
NEW & REBUILT
Gas - Diesel - Electric - Steam
RENT - SELL - BUY

"OUR 50TH YEAR"
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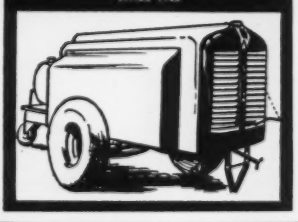

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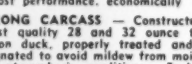

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20"	4	1/8"	1/32"	28 Oz.
20"	5	1/8"	1/32"	28 Oz.
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30"	5	1/8"	1/16"	32 Oz.
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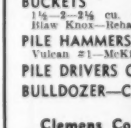

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FS-4322, Engineering News-Record
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Phone Walnut 7796.
or, 8221 Atlantic Avenue, Bell, California,
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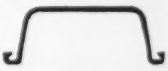

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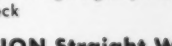

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OFFICIAL PROPOSALS

APPEAR HERE EACH THURSDAY. PROPOSAL ADVERTISEMENTS ACCEPTED UP TO 10:30 A.M. FRIDAY FOR THE ISSUE DATED THE FOLLOWING THURSDAY

Bids: June 10, 1952

Sub-Surface Investigations

WEST VIRGINIA TURNPIKE COMMISSION

Sealed proposals will be received by the West Virginia Turnpike Commission for:

CONTRACTS NOS. 1A, 1B, 1C and 1D

The work to be done under these Contracts involves the making of sub-surface investigations at the locations of the Bluestone River Bridge near Eads Mill (Contract 1A), the Fourmile Fork Bridge near Standard (Contract 1B), the Tunnel near Standard (Contract 1C), and the Kanawha River Bridge at Charleston (Contract 1D), all in connection with the construction of the West Virginia Turnpike in the State of West Virginia.

The principal items of work include:

	Unit	Contract 1A	Contract 1B	Contract 1C	Contract 1D
Land Borings—Type A	Lin.Ft.	50	60	—	2,600
Land Borings—Type A-T	Lin.Ft.	—	—	100	—
Land Borings—Type B	Lin.Ft.	20	20	—	1,100
Auger Borings	Lin.Ft.	350	400	—	100
River Borings—Type C	Lin.Ft.	—	—	—	150
River Borings—Type D	Lin.Ft.	—	—	—	75
Core Borings—Type E	Lin.Ft.	70	60	—	500
Core Borings—Type E-T	Lin.Ft.	—	—	1,500	—
Undisturbed Samples	Each	2	2	—	15

Proposals will be received at the office of the West Virginia Turnpike Commission, Comptroller's Office, 1340 Wilson Street, Charleston 5, West Virginia until 10:00 A.M., Eastern Standard Time on June 19, 1952, at which time and place said proposals will be publicly opened and read.

Contract documents may be seen and may be inspected by prospective bidders during office hours, after May 24, 1952, at the office of Howard, Needles, Tammen & Bergendoff, 804 Greenbrier Street, Charleston, West Virginia, and at the office of the Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York, New York.

Contract documents will be furnished for Five Dollars ($5.00) for each set, upon application to Howard, Needles, Tammen & Bergendoff, 804 Greenbrier Street, Charleston, West Virginia, mailing address P. O. Box 5266, Capitol Station, Charleston, West Virginia.

Proposals must be made upon the Proposal Forms furnished by the Commission in the manner designated in the Specifications, and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the contract on the outside, and must be accompanied by a cashier's or certified check drawn to the order of the West Virginia Turnpike Commission, and a Proposal Bond, each for not less than five (5) percent of the amount of the proposal, but not less than $500.00 nor more than $200,000.00 and must be delivered at the place designated above on or before the day and hour named. Where proposals are submitted for more than one contract, each proposal must be accompanied by a cashier's or certified check and a proposal bond in the required amount. Copies of the proposal form to be used for submitting proposals, of the form for the proposal bond and of the special addressed envelope are furnished in detached form with the contract documents.

The Contracts will be awarded or the proposals rejected within thirty (30) days from the date of opening proposals. The right is reserved to reject any or all proposals, and to waive any or all formalities.

THE WEST VIRGINIA TURNPIKE COMMISSION
D. Holmes Morton
Chairman

May 20, 1952

Bids: July 16, 1952

Construction Water and Sewerage Improvements

For the
City of Barbourville, Kentucky

Sealed bids or proposals for furnishing Bids: July 16, 1952 materials and labor for constructing Water and Sewerage Improvements for the City of Barbourville, Kentucky, will be received at the office of the Mayor, City Building, Barbourville, Kentucky, until Three o'clock (3:00) P.M. Eastern Standard Time, July 16, 1952.

These Water and Sewerage Improvements are comprised of the following Contracts:

Contract 1—Water Mains
Contract 2—Storage Reservoir
Contract 3—Water Treatment Plant
Contract 4—Sanitary Sewers and Pumping Stations
Contract 5—Sewage Treatment Plant

The bidder may bid on any or all of the above Contracts.

Proposals shall be addressed to the City of Barbourville, Kentucky, sealed and endorsed "PROPOSAL FOR WATER AND SEWERAGE IMPROVEMENTS — CONTRACT NO. 1, 2, 3, ETC.

Each proposal shall be accompanied by a certified check on some solvent bank drawn payable to the City of Barbourville, Kentucky, in an amount equal to ten (10%) per cent of the price bid, such check to be forfeited to the City of Barbourville, Kentucky, as liquidated damages in case of failure on the part of the successful bidder to execute the contract and furnish satisfactory surety bond within ten (10) days after the acceptance of the proposal. In lieu of a certified check bidders may furnish a bid bond satisfactory to the City of Barbourville, Kentucky.

The successful bidder will be returned after the contract is executed and the necessary bond furnished, and to the unsuccessful bidder after award is made.

Plans, specifications and form of proposal and contract may be obtained at the office of the Mayor, Barbourville, Kentucky, or from Alfred LeFeber & Associates, Consulting Engineers, Woodburn at Lincoln, Cincinnati 6, Ohio, upon deposit of $10.00 for each contract; $5.00 of which will be refunded upon the return of plans and specifications in good condition within thirty (30) days from the date of taking bids.

The City of Barbourville reserves the right to accept any bid or to reject any or all bids and to hold all bids for thirty (30) days before final acceptance thereof.
CITY OF BARBOURVILLE, KENTUCKY
By: Alry Bays, Mayor

Bids: June 17, 1952

Bronze Needle Valves

CONTRACT 411

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A.M., Eastern Standard Time, on Tuesday, June 17, 1952, for Contract 411, for furnishing, testing and delivering 36-inch and 24-inch bronze motor-operated needle valves and 12-inch bronze motor-operated needle valves with bronze air boxes, complete in every respect, for installation in the Neversink intake chamber of the Delaware aqueduct and in the release water chamber of the Downsville dam, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of eighteen thousand dollars ($18,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained at the office of the Chief Engineer, Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply.
RICHARD H. BURKE, Secretary

Bids: June 26, 1952

Mental Hospital, New Jersey

Notice is hereby given that sealed proposals will be received by the State of New Jersey for work in connection with a construction project encompassing sewerage system for Medical-Surgical-Reception Building, Kitchen and Dining Building, Boiler House, Laundry Building and miscellaneous service buildings at the Fourth Mental Hospital, Winslow Township, Camden County, New Jersey.

Bids will be received in the office of the Director, Division of Purchase and Property, Room 318, State House, Trenton 7, New Jersey between the hours of 1 P.M. and 2 P.M. Daylight Saving Time on Thursday, June 26, 1952, and will be opened and read in public immediately thereafter. No bid received after 2 P.M. will be accepted.

Separate bids will be received for:
Sewerage system for Medical-Surgical-Reception Building, Kitchen and Dining Building, Boiler House, Laundry Building and miscellaneous service buildings at the Fourth Mental Hospital, Winslow Township, Camden County, New Jersey.

Bids must be made on prepared "Form of Proposal" and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than five (5) per cent of the total base bid or by a bid bond in like amount.

Bids not submitted on prepared "Form of Proposal" sheets or enclosed in other than specially addressed envelopes will be considered informal and will be rejected.

Form of Proposal, Instructions to Bidders, Contract Documents, Drawings and Specifications may be examined at office of the Architect, Epple & Seaman and Leslie M. Dennis, Associate Architect, 901 Broad Street, Newark, New Jersey or at the office of the Director, Division of Purchase and Property, State House, Trenton, New Jersey.

The Director reserves the unrestricted right to accept or reject any or all bids or to waive informalities therein.

The successful bidders will be required to qualify for surety bond in full amount of contracts, of a company authorized to do business in the State of New Jersey.

No bid shall be withdrawn for a period of two (2) calendar months subsequent to opening of bids, without the consent of the State of New Jersey.

One set of contract documents for the proposed work may be obtained upon application to the Architect on deposit of a certified check in the amount of $50.00 drawn to the order of the Treasurer of the State of New Jersey. This deposit will be refunded to any bidder upon returning such set in good condition within ten (10) days after opening bids.

A Financial and Experience Questionnaire must be submitted to the Director of the Division of Purchase and Property, prior to submission of bids.

DEPARTMENT OF THE TREASURY
Division of Purchase and Property
Fred V. Ferber, Director

OFFICIAL PROPOSALS

Bids: June 12, 1952

New York State Highway Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, Albany, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced time, which is nine-thirty o'clock A.M., eastern standard time on Thursday, June 12, 1952 by Henry A Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. NICKERSON, Dist. Engr., 333 Broadway, Albany, N. Y.				
Essex	FASS50-1(Comp)	Completion of Tahawus-Schroon Riv., Pt. 1 (Co. Rd.) Proj. S-1047(2)	4.44	D. S. T. Graded Gravel	$12,000 Plans $15	$220,000
		DISTRICT No. 2				
		LACY KETCHUM, Dist. Engr., 109 North Genesee St., Utica 1, N. Y.				
Fulton	FARC52-26	Mayfield Vill. S. H. 5194 Mayfield-Northville, Pts. 1 & 2 S. H. 368-541 Northville-Chapmans Cors. S. H. 362 Northville Village, North, S. H. 5065 Proj. F-216(2); F-604(3); F-419(4)	4.96	9' Cem. Conc. Pavt.—24' Wide = 4.89 Mi. Asp. Conc. Ty. 1A, Opt. = 0.07 Mi.	$36,000 Plans $15	$718,000
		DISTRICT No. 3				
		WILLIAM ROBINSON, Dist. Engr., Weigh Lock Building, Syracuse, N. Y.				
Seneca	OT52-9 ST52-13	N. Y. State Thwy.—The Ontario Sect.—Subdivisions 1 & 2 (Ontario Co. Line to Tyre) & Eight Intersecting Roads	2.46	9" Cem. Conc. Pavt.—2 @ 25' wide = 0.12 Mi. (Thwy.) Asp. Conc. Ty. 1A, Opt. = 2.34 Mi (Int. Rds.) Hy. Sep. 4 Sp. Alpha I-Beam—222.5' Hy. Sep. 4 Sp. Alpha I-Beam—222.5' Hy. Sep. 4 Sp. Alpha I-Beam—220' Hy. Sep. 4 Sp. Alpha I-Beam—224' Hy. Sep. 4 Sp. Alpha I-Beam—222.5' Hy. Sep. 4 Sp. Alpha I-Beam—222.5' Hy. Sep. 4 Sp. Alpha I-Beam—225' Hy. Sep. 4 Sp. Alpha I-Beam—227'	$72,000 Plans $50	$1,300,000
		DISTRICT No. 6				
		H. F. BRUMM, Dist. Engr., State Office Building, Hornell, N. Y.				
Steuben	PSC9418	Elim. of Gr. Crossing of the Erie R.R., D.L.&W. R.R. & N.Y. R.R. with various streets in the City of Corning and the Villages of So. Corning, Riverside and Painted Post	....	Bldgs. & Facilities at the Engine Terminal	$13,000 Plans $50	$246,000
		DISTRICT No. 7				
		R. F. HALL, Dist. Engr., 444 Van Duzee St., Watertown, N. Y.				
Jefferson	FAC52-4 FAGC52-5	City of Watertown: Arsenal Street Proj. U & UG-577(4)	1.55	Asp. Conc. Ty. 2A R.R. Sep. 4 Sp. Alpha I-Beam 276'	$62,000 Plans $50	$1,127,000
		DISTRICT No. 8				
		J. S. BIXBY, Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.				
Orange	FASS52-9	Pine Island-New Jersey Line, Co. Rd. 26 Proj. S-307(1)	0.26	Asp. Conc. Ty. 1A, Opt. Alpha Deck Plate Girder 110' Sp.	$11,000 Plans $10	$200,000
Westchester	N.E.T.C.52-1	N. Y. State Thruway—New England Sect.—Subs. 2 & 2A (Boston Post Road Detour)	0.24	Asp. Conc. Ty. 1A, Opt. = 0.15 Mi. Misc. Work = 0.09 Mi.	$10,000 Plans $10	$180,000
		DISTRICT No. 9				
		F. W. DONOVAN, Dist. Engr., 71 Frederick St., Binghamton, N. Y.				
Broome	FASH52-9	Johnson City-Rte. 17 Conn. FASH50-13 (Johnson City Br. Proj. Cont. No. 3) Proj. U-1092(2)	0.37	Superstructure for 8 Sp. Alpha Plate Gird. 1400'—Alph. I-Beam 43.84 Sp. 2 Sp. Alpha I-Beam 100'	$70,000 Plans $15	$1,330,000
		DISTRICT No. 10				
		J. J. DARCY, Dist. Engr., Montauk Highway at Little East Neck Rd., Babylon, N. Y.				
Nassau	FARC52-36 FASH52-7	Greenvale-Glen Cove Massapequa-Glen Cove S. H. 9017 Proj. U-1102(1)	2.78	9" Cem. Conc. Pavt. 2 @ 25' wide = 2.77 Mi. Misc. Work = 0.01 Mi.	$85,000 Plans $25	$1,545,000
Nassau	FARC52-23	Conduit Blvd. Pts. 3, 3A, S. H. 1699A-1699C-1953 Proj. U-947(9)	3.51	9" Cem. Conc. Pavt., 36' wide / Asp. Conc. Ty. 1A, Opt. 36' wide / Asp. Conc. Ty. 1A Opt. = 1.98 Mi. Misc. Work = 0.30 Mi.	$90,000 Plans $15	$1,660,000
Suffolk	N.Sag.SP52-1	Northern Sagtikos State Parkway	1.68	8" Cem. Conc. Pavt. = 2 @ 25' W. = 0.75 Mi. (Pkwy.) 8" Cem. Conc. Pavt. Var. Wide = 0.82 Mi. (Acc.) Misc. Work = 0.11 Mi. Hy. Sep. 2 Sp. Rigid Frame 95'-115'-95'	$50,000 Plans $25	$848,000

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

OFFICIAL PROPOSALS

Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

OFFICIAL PROPOSALS

Bids: July 17, 1952

Automatic Parking Garage

MUNICIPAL PARKING AUTHORITY
CITY OF DETROIT, MICHIGAN
CONTRACT PA-1

Sealed proposals for an automatic parking garage, located at the southwest corner of St. Antoine and Macomb Streets, addressed to the CITY ENGINEER'S OFFICE, DEPARTMENT OF PUBLIC WORKS, of the City of Detroit, and endorsed: "Proposal for Contract PA-1" will be received at the OFFICE OF THE CITY ENGINEER, 30TH FLOOR, GUARDIAN BUILDING, until 2:00 P.M. City of Detroit time, on TUESDAY, JULY 22, 1952, at which time they will be publicly opened and read aloud. Any proposal received after the above-mentioned time will be returned to the bidder unopened.

The work included consists of the construction of an automatic parking garage having a capacity of 300 passenger automobiles. The structure and system shall be of the bidders own design, restricted only to the City's specified minimum requirements. Bidders will be required to submit with their proposals complete information concerning the type of structure and system on which their bid is based. The successful bidders will be required to prepare detailed working drawings and specifications necessary for construction.

The Contract Documents, including Notice to Bidders, Form of Proposal and Agreement, Drawings and Specifications, may be examined at the office of the City Engineer, 30th Floor, Guardian Building, Detroit 26, Michigan, during business hours, and copies may be obtained by making a deposit of $10.00 per set, which sum will be refunded upon the return in good condition of the complete set of Contract Documents within ten days after receipt of proposals, or if used in submitting a bona fide proposal.

Each proposal shall be accompanied by a certified check or a satisfactory bidder's bond in an amount of not less than 5 percent of the total bid price, as security for the acceptance of the Contract.

After the scheduled closing time for receipt of bids, no proposal may be withdrawn for at least 90 days.

The City of Detroit reserves the right to waive any informality in any bid, or to accept any bid, or to reject any or all bids, should it be deemed for its best interests so to do.

CITY OF DETROIT
FOSTER WINTER, President
Municipal Parking Authority
G. R. THOMPSON City Engineer

U. S. Government

Office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota—Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for Pine Knoll and Tow Head Rapids Diversion Channels, Mississippi River, near Aitkin, Minnesota, will be received in this office until 2:00 P.M. C.S.T., June 12, 1952, and then publicly opened. Further information upon application.

Office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota—Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for Aitkin Flood Diversion Channel, Mississippi River, near Aitkin, Minnesota, will be received in this office until 2:00 P.M., C.S.T., June 18, 1952, and then publicly opened. Further information upon application.

GOVERNMENT OF THE DISTRICT OF COLUMBIA, DIRECTOR OF HIGHWAYS, D. C., May 23, 1952. SEALED PROPOSALS will be received in Room 429, District Building, 14th and E Streets, N.W., Washington 4, D. C., until 2:00 P.M., June 18, 1952, EASTERN DAYLIGHT TIME, and then publicly opened and read for certain grading and drainage for the Extension of East Capitol Street Bridge from 19th Street to Kingman Lake. Federal Aid Project #FS-42(3). Quantities of the main items involved are: Removal and disposal of 562,000 cu. yds. of unsuitable material by dredging; and 360,000 cu. yds. of borrow and fill material. Prospective bidders are advised that water borne equipment will be limited to size by existing clearances horizontal and vertical by certain downstream bridges. Proposal forms, drawings and specifications may be obtained in the Office of Chief Clerk, Engineer Department, Room 427, District Building, upon the deposit of a Certified Check made payable to the Collector of Taxes, D. C., in the amount of TEN DOLLARS ($10.00) for each set. (Telephone National 6000, Ext. 2378)

OFFICIAL PROPOSALS

Bids: June 17, 1952

Route 25, Section 36B

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 25, SECTION 36B
Route 25, Section 36B, Penn and Linden Streets, City of Camden, Camden County. Traffic Signals, Interconnection and Cycle Selector Installations. The principal items for installation are:

4,000 lin. ft. Duct Installation
23 Junction Boxes
6 Pressure Detector Assemblies
2 Meter Cabinet Foundations

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, June 17, 1952, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Because of the character of the work to be performed under this contract, bids will be accepted only from contractors prequalified in the classifications of grading, paving, or general construction.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certificate check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: June 17, 1952

Readvertisement Allamuchy-Hackettstown Road

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

Construction of a portion of Allamuchy-Hackettstown Road from end of existing concrete running southerly toward Hackettstown, in Allamuchy Township, Warren County, Federal Aid Secondary Project No. S-7(4). Length 0.435 mile. The principal items of construction are:

Estimated:
1,758 cu yds. Roadway Excavation—Unclassified
852 cu. yds. Subbase
5,101 sq. yds. 8" Plain Concrete Pavement

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, June 17, 1952, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Secondary Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements, any by P. L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 18 E. Blackwell Street, Dover, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certificate check shall not be less than $500.00 nor more than $20,000.00, and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: June 17, 1952

Route 35, Sections 25B and 34D

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

Widening and resurfacing on Route 35, Sections 25B and 34D, from Morgan to Keyport, Madison, Matawan and Raritan Townships and Borough of Keyport, Middlesex and Monmouth Counties. Federal Propect No. F-72(5). Length 4.167 miles. The principal items of construction are:

Estimated:
Roadway Items
22,000 cu. yds. Roadway Excav.—Earth
17,778 cu. yds. Borrow Excav.
12,500 cu. yds. Subbase
38,938 sq. yd. Waterbound Macadam Base Course
3,800 sq. yds Concrete Base Course
37,544 sq. yds. Pen. Mac. Inter. Course
21,800 tons Bit. Conc. Surface Course
630 lin. ft. Rein. Conc. Culvert Pipe
310 lin. ft. Cast Iron Culvert Pipe
590 lin. ft. Corrugated Metal Culvert Pipe
9,300 lin. ft. Concrete Curbs
Electrical Items
14 Pressure Detector Installations
4,485 lin. ft. G.W.I. Conduit
4 Controller and Meter Cabinets
35,000 lin. ft. Wire Installation

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, June 17, 1952, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27, of the Revised Statutes of New Jersey and supplements and by P. L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 48 East Front Street, Red Bank, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Engineering News-Record

Reaches Your Local Contractors

Its distribution among the contractors of any one state is in proportion to the number of contractors situated in that state. The Official Proposal Columns of *Engineering News-Record* offer precisely the same efficient service to municipalities, counties, state and federal departments in every section of the United States.

May awards 13% over 1951

- **Biggest month for housing since June, 1950**
- **May highway contracts set new record**
- **Public buildings show further gains**

For the second month in a row, 1952 contract awards, as reported by ENGINEERING NEWS-RECORD, ran 13% ahead of last year.

May contracts for $1,434 million brought the total for the year to date to $5,642 million, only 10% under the record set in same period of 1951.

Private mass housing led all other types of contruction, with $334 million reported in contract awards, 26% more than for May 1951.

It was the biggest month in contract dollars since June of 1950, for private mass housing. Private housing contracts amounted to $1,250 million for the first five months of 1952. This was 37% more than last year, and only 13% under the record year of 1950.

Industrial building registered $289 million in new contracts during May, which was only 9% under May of last year. Although current awards for industrial building are still far behind last year's all-time record, the outlook is bright for another good year (see following page).

Highway contracts hit $179 million in May, a new record for any single month. Dollar volume for highway construction can be expected to set a new, all-time high in the current year.

In the first five months of this year, highway contracts amounted to $594 million, 35% ahead of 1951, and 28% ahead of 1950.

Commercial, non-residential, awards totaled over $93 million in May, which was more than twice as much as in April, and far above the $52 million posted in March, the previous high month this year.

Commercial building has gained steadily since hitting a low point in January when contracts added up to $32 million. Contracts so far in '52 are up to a total of $260 million, only 8% under the same period of '51, when this type of construction first began to feel the effects of government controls.

Contract awards for commercial building should finish the year above the 1951 total of $600 million.

Public housing, with $88 million in new contracts in May, showed a further decline from the peak reached in March, 1952.

This downtrend may be partly reversed, however, depending on the number of new public housing units authorized by Congress.

So far this year, public housing has done much better than last year, with contracts totaling $416 million, 79% more than in the comparable 1951 period.

Public building construction, other than public housing, hit $196 million in May. This type of construction, which includes schools, hospitals and public administration buildings, has shown steady gains since February of this year.

• **Where is it going?**—The region west of the Mississippi, with $350 million, had the biggest portion of the $1,434 million reported for all contracts across the nation.

This region sparked by Texas, led all other regions in industrial building and in streets and roads construction. The Far West, Middle Atlantic, Midwest and Southern regions ran within a short range of each other in total dollar volume.

The Middle Atlantic region, led by New York, led in private mass housing for the month, with contracts totaling $120 million.

The South showed up well with building contracts adding up to $71 million. Mass housing accounted for $62 in contracts in the South, while highway contracts added another $40 million to the South's share.

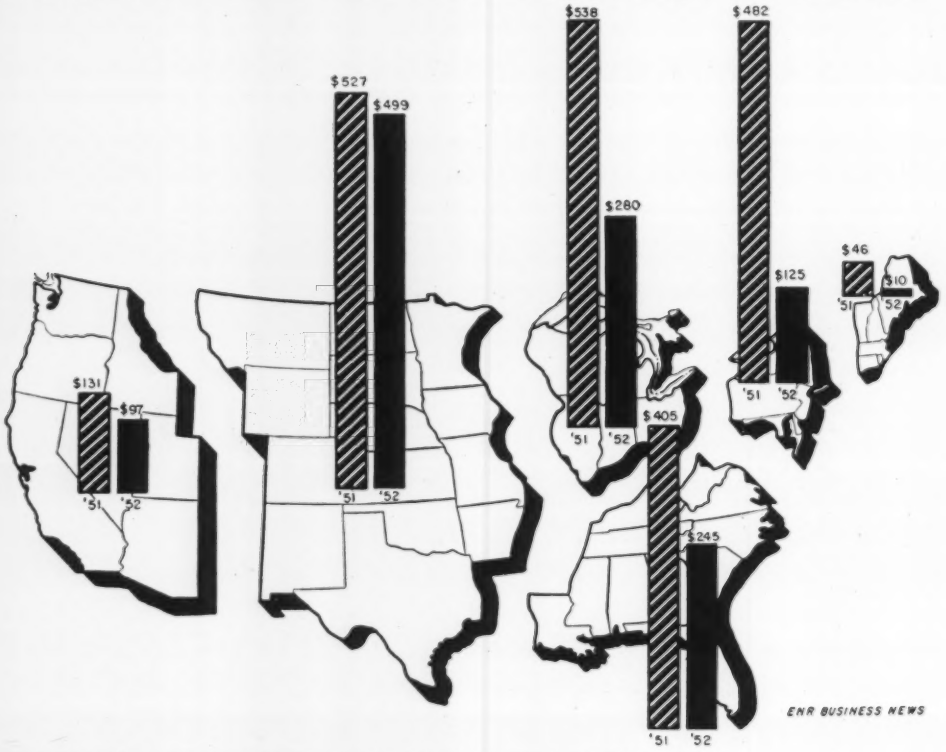
The Middle West followed the pattern set by the South, registering nearly the same volume for both industrial building and private housing. Highway contracts hit $34 million for the month in the Midwest.

ENGINEERING CONSTRUCTION CONTRACTS—MAY, 1952

ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $24,000; *other public works,* $60,000; *industrial buildings,* $82,000; *other buildings,* $300,000

Five Weeks—Thousands of Dollars (000 Omitted)

	May, 1952						U. S. Cumulative Five Months			Canada May
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1952	1951	'51 to '52	1952
Public Works											
Waterworks	464	1,655	4,985	1,968	6,305	3,703	19,080	100,533	95,927	+ 5	1,080
Sewerage	2,977	4,063	2,016	3,868	7,306	5,327	25,557	98,572	139,474	−29	1,554
Bridges	2,362	1,759	4,980	11,167	8,215	9,902	38,385	142,801	115,659	+23	21,177
Earthwork and waterways	598	1,708	4,882	2,077	11,478	38,481	59,224	240,134	246,095	− 3	4,239
Streets and roads	19,681	14,538	40,265	33,860	46,658	23,599	178,601	594,191	438,935	+35	13,289
Public buildings, residential	5,227	25,252	4,864	7,222	34,807	10,573	87,945	415,432	232,052	+79	5,924
Other public buildings	11,007	45,387	26,821	38,717	32,793	40,999	195,724	733,096	965,576	−24	9,229
Unclassified	3,358	6,689	28,416	6,743	29,585	17,208	91,999	306,934	274,987	+12	18,281
Total public	45,674	101,051	117,229	105,622	177,147	149,792	696,515	2,632,093	2,509,305	+ 5	74,773
Federal government (included in above classifications)	5,882	31,625	39,186	29,347	57,536	82,846	246,422	868,414	973,230	−11	24,776
Private											
Bridges				60			60	9,900	7,438	+33	
Industrial buildings	4,176	36,676	70,614	71,855	99,648	5,611	288,580	1,256,102	2,128,139	−41	53,385
Com'l. buildings, residential	18,353	119,760	61,554	61,539	46,448	26,335	333,989	1,250,402	914,270	+37	10,922
Other commercial buildings	9,063	19,500	19,155	32,262	11,498	1,794	93,272	260,219	284,215	− 8	8,879
Unclassified		71	3,688	1,356	15,725	386	21,226	233,344	412,475	−43	15,200
Total private	31,592	176,007	155,011	167,072	173,319	34,126	737,127	3,009,967	3,746,537	−20	88,386
Total Engineering Construction:											
May, 1952—5 weeks	77,266	277,058	272,240	272,694	350,466	183,918	1,433,642				103,586
April, 1952—4 weeks	78,905	239,159	237,547	141,276	321,213	162,240	1,180,340				75,102
May, 1951—5 weeks	50,703	253,960	286,368	246,710	248,272	181,922	1,267,995				194,354
Five Months—1952	253,113	1,056,285	1,244,178	872,133	1,528,146	688,205		5,642,060		−10	444,706
Five Months—1951	191,307	1,160,659	1,347,409	1,138,319	1,585,382	832,706			6,255,842		503,391
% Change '51 to '52	+32	−9	−8	−23	−4	−17					−12



BARS SHOW ENR contract awards in millions of dollars for first five months of 1951 and 1952.

Industrial building up again

- **Contracts up for 3rd month**
- **Year's total may be 2nd highest**
- **Chemical plant expansion still strong**

After hitting a low of $158 million in February, industrial building contracts, as reported by ENGINEERING NEWS-RECORD, registered their third gain in as many months with a total of $289 million in May.

Although that figure was considerably smaller than the $337 million for January of this year, it was only about 10% less than the total for May, 1951.

To date, industrial building contract awards aggregate $1,256 million, 41% under the $2,128 million for the same five months of 1951.

The comparison makes 1952 look weak, but it isn't. The reason: February and March of 1951 saw a record volume of industrial contracts, $1,130 million in the short, two-month period. No other two months in history have seen such a high volume of industrial building awards.

That two months total in 1951 represented more than 25% of the total contracts which were reported for the entire record year of private industrial building.

• **Big one coming up**—Indications are now strong that industrial building will continue at its present level and may even go higher for the remaining months of 1952. Although this year is not expected to measure up to 1951, it will still be the second biggest year on the books for private industrial building. New chemical plants are leading all other types of industrial building this year, just as they did last year.

Metal refining and rolling mills are second and public utilities are third.

Chemical plant expansion is expected to keep sparking industrial building during the rest of the year.

Public utilities can also be counted on to maintain their present high level of construction activity.

• **The Lone Star shines**—States west of the Mississippi kept the ball rolling in new plant construction this year. Industrial contracts in this region totaled almost $500 million in the first five months of this year; down only 5% from 1951.

Texas alone had contracts totaling $317 million. That represents more than 25% of the nation's private industrial building thus far in 1952 on the basis of ENR contract awards.

The Far West also did a better job of maintaining its volume of industrial

building than other regions. Contracts reported by that region ($97 million) were 25% under 1951. In other regions, contract volume was down from 40% in the South to 78% in New England. The Middle Atlantic region is also far behind 1951, with 74% less contracts than in the comparable period in 1951.

The Middle West, the region with the second highest contract volume, $280 million in 1952, was still 48% behind 1951.

While Texas was the leading state, there were other strong ones notably Louisiana, Pennsylvania, Iowa, Illinois, Michigan, and California.

Fight over bridge enters 2nd phase

Definitely unhappy with the "no decision" result in the state legislature, San Francisco last week had carried its battle over a second bay crossing into a new phase.

The city's board of supervisors—backed by Mayor Elmer Robinson—put through a resolution protesting the sale of $50 million worth of bonds to finance new approaches to the present bay bridge, and opposing any refunding of money to the state highway users fund (as repayment for maintenance expenditures on the bridge).

The fight stems back, among other things, to the demand of rural-area legislators that the bridge tolls be used to pay for maintenance; to a long and unresolved battle over where any second crossing of the bay should be located.

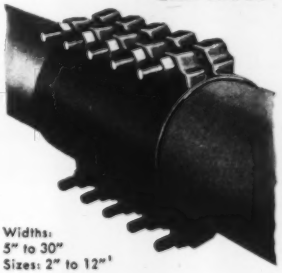
Most particularly, it stems from a proposal for an $80 million refinancing plan approved late last year by the California Toll Bridge Authority and by city officials of both San Francisco and Oakland. Under this plan, $50 million would be spent on approaches to both the new crossing and the existing one, and other moneys would go to refund payments from the highway users fund.

A bill to approve this plan was fought throughout a recent special legislative session, but ended in a deadlock (ENR April 17, p. 196) that left the Toll Bridge Authority free to sell its bonds if it so desired, according to attorneys.

• **Mortgage too big?**—But San Francisco Authorities—already unhappy over the Toll Bridge Authority's plan to build a parallel crossing (they want a crossing further south), now have brought up a real financial worry:

SMITH BLAIR INC.

Full Circle CLAMP COUPLINGS

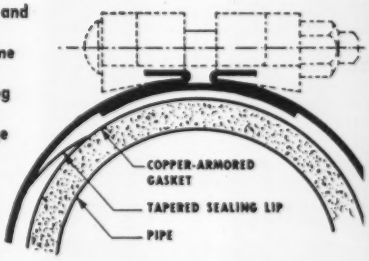


Widths: 5" to 30"
Sizes: 2" to 12"

★ For PERMANENTLY repairing broken or cracked pipe

By utilizing the flexibility, durability and strength of copper or stainless steel, the Smith-Blair Full Circle Clamp Coupling has proved itself to be a revolutionary repair unit. It is fast becoming the standard method of repair for the water works throughout the United States and Canada. It is a *permanent* repair unit for *any* type of pipe.

- Lowers Initial Cost
- Minimizes shut downs and shut down time
- Reduces installation time required
- Requires less excavating for installation
- Gives higher percentage of complete shut-offs on the first try — under pressure.



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Main Office and Factory
535 Railroad Ave.
South San Francisco, California
BRANCH:
8241 Phlox St., Downey, Calif.
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Heavy corporate offerings to finance construction

Apparently heartened by the quick acceptance of investors of corporate security offerings, a number of major companies pushed bond sales last week—mostly to finance construction programs.

There had been some doubt during the winter and early spring as to how the public would accept such offerings, in view of the heavy tax burdens riding them. For a time (ENR Mar. 6, p. 103) it appeared that municipal and other governmental unit financing would siphon off much of the nation's investment capital because of tax-exempt features.

But corporate bonds have had no trouble at all, and last week, Chicago's Commonwealth Edison Co., said it planned to reach the market with a whopping $300-million bond offering, largely for construction of new facilities. Actually, the bond issue will represent a little more than half what the company plans to spend on construction—the rest to come out of operating funds. In anticipation of quick sale of the bonds, the company had already started work on a substation in southwest Chicago that it says will be the largest in the country when completed.

• **Plenty more**—Chicago Edison was only one of the major public utilities planning bond offerings for construction work.

Others included Boston Edison, which planned a $16-million issue to finance plant extension and improvement; Gulf Power Co. will sell $7 million in bonds to pay off bank loans and finance construction.

Meanwhile, other industrial companies also were offering bonds. Among these were the Burroughs Adding Machine Co., which came into the market with $25 million worth of sinking fund debentures, of which $8 million will go for construction work; and the Dallas Power & Light Co., which offered new preferred stock to help finance (among other matters) a $14.3-million construction program for the current year.

• **Some public offerings**—The bond market was active enough, however, in snapping up governmental-unit bond offerings.

The City of San Diego found no trouble selling a $6.5-million issue for a waterworks construction program; the Territory of Puerto Rico disposed of $6.4 million in bonds to finance public improvement programs; and numerous New York State school districts also found a ready market for bonds that totaled more than $3 million.

With this active market, officials of the Oklahoma Turnpike Commission anticipated no trouble this week when they open bids on $7 million worth of revenue bonds.

Cement shipments down

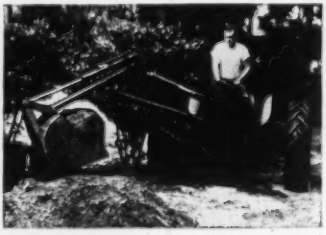
Shipments of finished Portland cement totaled 15.9 million barrels in March, 10% under shipments for the same month last year, according to the Bureau of Mines.

DIGGING COSTS REDUCED!

The Sherman Power Digger has proved itself a champion cost-cutter on thousands of jobs where digging costs were formerly too high.

Wherever restrictions on weight and clearances make a job hard to get to, where rugged performance is a must, the Sherman Power Digger fills the bill on operations both large and small.

Back-hoe shovels retain their load up to 7 feet, to clear truck bed. The speed and efficiency of this popular digger is apparent once you see it at work.



Fast, efficient work is possible in cramped working areas. The Sherman Power Digger can even be used inside buildings. Only 7'6" overhead clearance is required.

Digs through asphalt and macadam—works well in hardpan clay, gravel, shale and stony ground. Easily operated with four simple hand controls.

• • •

Mounted on a rubber-tired Ford or Ferguson Tractor with Sherman auxiliary transmission providing 12 forward, 3 reverse and 3 power take-off speeds. Length only 13' 4"; height, 10' 3"; width, 5' 6". From one position will reach to dig 10 feet behind tractor in 140° arc and to depth of 8 feet.

For complete information and name of nearest distributor who can show you the money-saving Sherman Power Digger in action, WRITE TODAY to Sherman Products, Inc., Dept. C, 3200 W. Fourteen Mile Road, Royal Oak, Michigan.

Sherman PRODUCTS, INC.

Patent No. 2,303,825. Other patents pending

FARM AND INDUSTRIAL EQUIPMENT MANUFACTURERS

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Labor nudges costs higher

Construction costs went up again this month. Higher wage rates and price increases for lumber and cement were responsible for the rise.

ENGINEERING NEWS-RECORD's Construction Cost Index (1913 equals 100) rose to 561.69 in June, 0.8% higher in May, and 3.5% above June 1951.

Building costs (1913 equals 100) moved to 412.50 in June, 0.5% above the May figure, and 2.9% higher than June 1951.

ENR's average rate for skilled labor in 20 cities went up $2.808 per hour, a 0.4% increase over May and 6% higher than a year ago.

Structural iron workers and carpenters got increases to bring the average rate up to $2.741 for structural iron workers and $2.542 for carpenters.

No increases were reported for bricklayers. Average rates for common labor moved to $1.706 per hour in June, 0.9% above May and a 5.6% increase since June 1951.

More wage increases are in the works at this moment. Some have been negotiated and are now awaiting approval of the Wage Stabilization Board. Others are now being negotiated.

Lumber prices, particularly fir, moved up. Higher freight rates were the prime mover.

ENR's 20-Cities' Average for fir 2x4s went up to $110.32 per m fbm, 1.3% higher than May, but only 0.4% above June 1951.

Pine 2x4s were also higher moving up to $93.03 per m fbm, a 0.8% gain since May. Pine was only 0.3% higher.

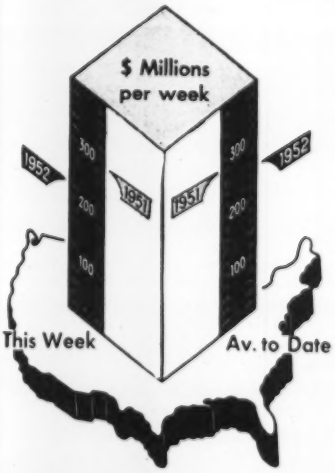
ENR Cost Indexes in 21 cities 1913—100

	Construction Cost		
	1952		1951
City	June	May	June
Atlanta	397	395	395
Baltimore	511	509	487
Birmingham	417	417	416
Boston	614	611	586
Chicago	626	626	598
Cincinnati	553	549	556
Cleveland	685	685	606
Dallas	437	437	437
Denver	572	571	558
Detroit	625	622	602
Kansas City	588	588	575
Los Angeles	574	567	572
Minneapolis	593	593	587
Montreal	510	500	478
New Orleans	437	435	439
New York	618	618	616
Philadelphia	616	601	575
Pittsburgh	577	557	531
St. Louis	608	605	597
San Francisco	565	535	533
Seattle	620	620	586

	Building Cost		
	1952		1951
City	June	May	June
Atlanta	353	351	339
Baltimore	414	409	403
Birmingham	358	355	351
Boston	422	419	407
Chicago	416	415	395
Cincinnati	406	402	398
Cleveland	418	419	402
Dallas	371	371	362
Denver	433	431	432
Detroit	424	423	411
Kansas City	433	434	411
Los Angeles	407	401	395
Minneapolis	438	438	421
Montreal	393	383	383
New Orleans	381	379	377
New York	465	465	463
Philadelphia	472	462	449
Pittsburgh	416	416	400
St. Louis	444	441	436
San Francisco	386	386	380
Seattle	389	389	384

Activity This Week

As reported to ENR
(in millions of dollars)



Contracts by type of work

	This Week	Cumulative 23 wks 1952	1951	% chge
Waterworks	$2.5	$103.0	$100.2	+3
Sewerage	4.5	102.9	146.0	−30
Bridges	13.1	166.1	128.5	+29
Highways	38.5	632.5	469.0	+35
Earthwork, waterways	2.2	242.1	255.0	−5
Buildings:				
Public	43.2	776.1	1,008.7	−23
Housg., pub.	2.5	418.6	253.3	+65
Housg., priv.	61.8	1,312.2	934.9	+40
Commercial	17.5	277.9	312.6	−11
Industrial	14.1	1,270.3	2,215.6	−43
Unclassified	26.0	566.3	728.1	−22
Total	**$225.9**	**$5,868.0**	**$6,551.9**	**−10**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $31,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR indexes	Base Year = 100 1913	1926	1949
Constr. cost June	561.69	270.00	117.75
May	557.11	267.80	116.79
Bldg. cost June	412.50	222.98	117.26
May	410.30	221.80	116.65
Volume May	554	225	160

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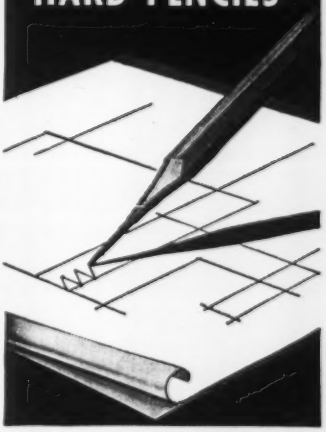

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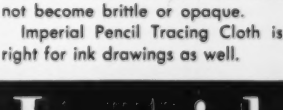


SOLD BY LEADING STATIONERY AND DRAWING MATERIAL DEALERS EVERYWHERE

$40 million slated in road equipment

Forty-one states and the District of Columbia will spend $39.9 million for new highway equipment this year, according to an ENGINEERING NEWS-RECORD survey.

This is 2% less than the $40.6 million budgeted in 1951.

There were 12 states budgeting over $1 million for new highway equipment this year.

New York and South Carolina joined the ranks of the big spenders this year. New York jumped its highway equipment budget from $653,000 last year to $2 million this year.

Five states which were in the $1-million-or-more class last year plan to cutback on equipment expenditures this year. Alabama, Kentucky, Ohio, and Iowa, which spent more than $1 million in 1951, cut their budgets for 1952 to the $500,000 to $750,000 bracket. West Virginia, which spent $1.8 million in 1951, slashed its 1952 equipment budget to include only minor replacements in 1952.

Texas and North Carolina plan to spend more for new highway equipment this year than any other states.

The Texas budget provides $3.1 million for 1952, 17% more than 1951. North Carolina ranks second with a $3-million program, but that is still 23% less than it spent in 1951.

Major reason for the strong North Carolina showing in the purchase of highway equipment is that a large share of the State Highway work is performed by force account.

Five of the 12 biggest state purchasers of highway equipment are in the South. The rest are scattered throughout the nation. Massachusetts is the big spender in New England. New York and Pennsylvania are the leading purchasers in the Middle Atlantic States this year. In the Middle West, Illinois and Indiana are the biggest buyers in the market. Texas and Missouri lead in the region west of the Mississippi, while California accounts for more than half of the 1952 purchases in the Far West.

State highway departments' budgets for equipment purchases in 1952 as reported to Engineering News-Record

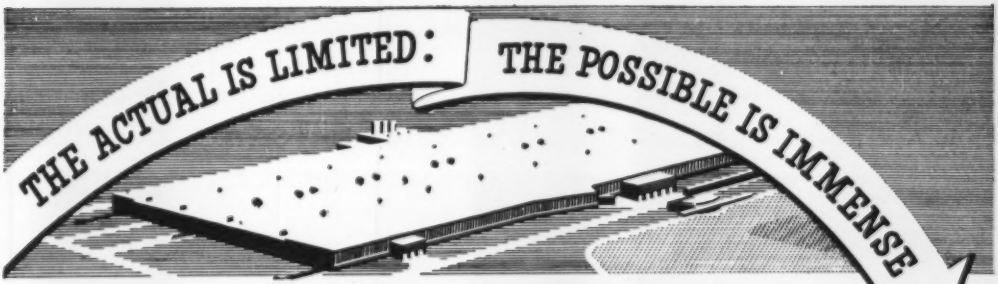
(Thousands of dollars)

	1952	1951	% change
Total for 41 states and D. C.	**$39,868**	**$40,567**	**−2**
Maine	$ 250	$ 215	+16
New Hampshire	200	200	0
Vermont	100	100	0
Massachusetts	n.a.*	(2,037)	....
Rhode Island	230	70	+229
Connecticut	562	237	+137
New England (5 of 6)	**1,342**	**822**	**+63**
New York	2,000	653	+206
New Jersey	650	565	+15
Pennsylvania	2,000	1,900	+5
Maryland	650	700	−7
District of Columbia	92	92	0
Delaware	175	193	−9
Middle Atlantic (all 6)	**$ 5,567**	**$ 4,103**	**+36**
Virginia	1,800	2,000	−10
West Virginia	Only minor repl.	(1,760)	....
North Carolina	3,000	3,900	−23
South Carolina	1,000	760	+32
Georgia	2,000	2,073	−4
Florida	250	250 (est.)	0
Alabama	750	1,055	−29
Mississippi	275	290	−5
Louisiana	1,500	2,997	−50
Kentucky	500	1,750	−71
Tennessee	n.a.	n.a.	....
South (9 of 11)	**$11,075**	**$15,075**	**−27**
Ohio	700	1,350	−48
Indiana	1,700	1,681	+1
Illinois	2,150	1,114	+93
Wisconsin	Counties purchase equipment		
Michigan	650	469	+39
Middle West (4 of 5)	**$ 5,200**	**$ 4,614**	**−13**
Minnesota	950	973	−2
Iowa	750	1,158	−35
Missouri	2,225	1,776	+25
Arkansas	n.a.	222	....
North Dakota	250	280	−11
South Dakota	200	467	−57
Nebraska	700	575	+22
Kansas	804	731	+10
Oklahoma	800	553	+45
Texas	3,125	2,668	+17
Montana	600	700	−14
Wyoming	n.a.	n.a.	....
Colorado	687	500	+37
New Mexico	550	170	+224
West of Mississippi (12 of 14)	**$11,641**	**$10,552**	**+11**
Idaho	350	427	−18
Utah	750**	975	−23
Arizona	375	402	−7
Nevada	175	175	0
Washington	700	750	−7
Oregon	n.a.	n.a.	....
California	2,693	2,672	+1
Far West (6 of 7)	**$ 5,043**	**$ 5,401**	**−7**

*Mass purchases in '52 estimated to be about same as in 1951.
**Trucks and graders predominate.

Olin Industries buys Ramset Fasteners

Olin Industries, Inc., of East Alton, Illinois, has acquired Ramset Fasteners, Inc., of Cleveland, Ohio, one of the nation's pioneers in the field of explosive-powered tools for driving steel studs into concrete, brick or steel.



NEW LINCOLN PLANT CREATED BY INCENTIVE-INSPIRED CO-ACTION IN DEVELOPING POSSIBILITIES IN PRODUCT

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13 STORY WELDED FRAMEWORK SAVES 25% STEEL

By **NED H. ABRAMS,** Architect
Sunnyvale, California

EFFICIENT use of all-welded prefabricated construction has cut steel needs by 25% and costs by 20% on this 900 ton framework. Total weight of the hotel building is estimated at one-third less than conventional structures making this 13-story, 100' x 155' building one of the lightest, yet strongest structures in the Pacific Northwest.

Light, open trusses carry most of the dead loads to the columns. Structural members are shop fabricated at low cost with fast, downhand welding techniques. Lattice columns are erected from the street while other framework is erected from a crane platform on the fourth floor level using a 123-foot boom.

During construction it was decided to increase the width of the framework from 40' to 45'. Had it not been for the welded design, such a modification would have entailed considerable cost.

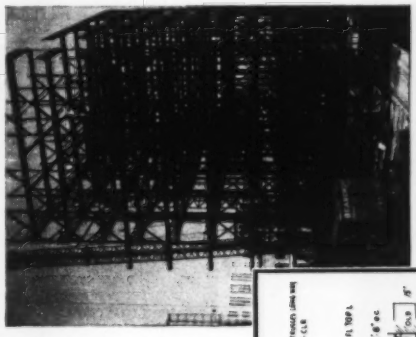
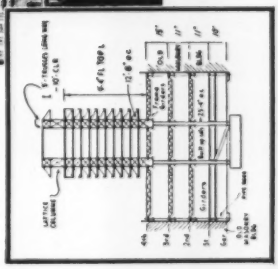


Fig. 3. All-Welded Framework *for the 13-story Ridpath Hotel, Spokane, Washington. Steel Fabricators: Union Iron Works; Erectors: Dix Steel Company, Spokane, Wash.*



How to Design Arc Welded Structures

Latest data on calculations, procedures and costs are found in the new 9th Edition Procedure Handbook of Arc Welding Design and Practice. Price only $2.00 postpaid in U.S.A.; $2.50 elsewhere.

WELDED DESIGN ALWAYS SAVES STEEL LOWERS COST

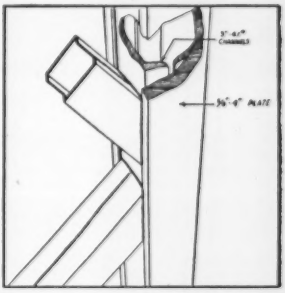


Fig. 1 Typical Detail— *Lattice column shop fabricated at low cost from 3"—4.1# channels and ¼" plates and field welded with Lincoln "Fleetweld" 5 electrodes.*

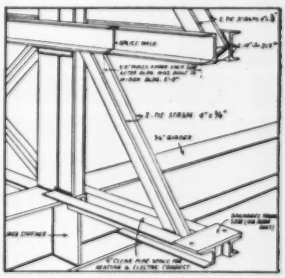


Fig. 2 Column and Spandrel Support— *Typical detail fourth to eleventh stories. Shows addition of 5'0" to building by splicing 10" channels to the frame. Tie straps are 4" x ⅜" angles.*

MORE PROOF

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THE WORLD'S LARGEST MANUFACTURER OF ARC WELDING EQUIPMENT

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.
ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
June 10, Massachusetts

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MASSACHUSETTS—Commonwealth of Mass., 20 Somerset St., Boston.

Coleman Bros. Corp., 40 Central St., Boston, Mass. CA $716,699, est. $900,000. Alternate B. Contr. 734, constr. underpass and roadways, Boston. CD 5/20, under LB.

D'Onofrio Constr. Co., 65 Stiles St., New Haven, Conn., LB, $629,000, Contr. XIV, enlarging sewage disposal plant, STRATFORD, CONN. Town, Town Hall, Stratford, Conn. Bids May 15. CD 4/2.

BUILDINGS

LOW BIDS AND CONTRACTS

Morris Constr. Co., 219 Central St., Lowell, Mass. LB, $587,577, est. $500,000. Elementary SCHOOL, Billerica Center, BILLERICA, MASS. Town R. Myron Davis, chn. School Bldg. Comn., Boston Rd., Billerica, Mass. Bids May 22. CD 5/6.

▲ **Associated Constr. Co.**, 1010 Wethersfield Ave., Hartford, Conn., LB, $1,595,000, mfg. PLANT and OFFICE, BLOOMFIELD, CONN. Kaman Aircraft Corp., Bradley Field, Windsor Locks, Conn. Bids May 6. CD 5/2.

George L. Hickey, Inc., 13 Spring St., Stamford, Conn., CA, $536,665, North Mianus SCHOOL addns. alterations GREENWICH, CONN. Town Supt. of Schools, Greenwich, Conn. Bids Apr. 15, awarded May 22. CD 4/24, under LB.

Anderson Fairoaks Constr. Co., 146 South Marshall St., Hartford, Conn., CA, $787,500, PHA LB-1 HOUSING, off Sunset Park, NORWICH, CONN. City Housing Auth., 242 Main St., Norwich, Conn. Bids Mar. 13. CD 3/20, under LB.

Lorella & Naccarato, 21 Avery St., Mystic, Conn. LB $536,000, SCHOOL, Clark Lane, WATERFORD, CONN. Town School Bldg. Comn., Waterford, Conn. Bids May 22. CD 5/6.

▲ **The Edward Packtor Co.**, 462 Silas Deane Hy., Wethersfield, Conn., LB, $1,402,712, High SCHOOL, Wolcott Hill Rd., WETHERSFIELD, CONN. Town School Bldg. Comn., Wethersfield, Conn. Bids May 20. CD 5/15.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
June 10, Maryland
STREETS AND ROADS
June 11, Delaware June 19, Maryland
June 20, Pennsylvania

N. Y., Garden City Park—B.A. 6/24—Bd. Supervs. Town of North Hempstead, Town Hall, Plandome Rd., Manhasset, incinerator. $850,000. CD 11/13/44, under N. Y., Mineola.

Pa., Tyrone—B.A. 6/20—Municipal Auth., Boro Bldg., concrete and reinforcing-steel, sewage disposal plant, repairing present sys. $650,000. Burrill & Gwin, 201 Aldrich Ave., Altoona, engrs. CD 2/14.

▲† **Pa., Pittsburgh**—WAREHOUSE, etc.—B.A. 7/8—U. S. Eng., 121 N. Broad St., Phila., warehouse-refrigerated storage, paint storage, office, shops, etc. Moon Twp., Greater Pittsburgh Airport, $1,000,000. Gannett, Fleming, Corddry & Carpenter, Inc., 600 N. 2 St., Harrisburg, engr. CD 9/28.

BIDS ASKED—BUILDINGS

N. J., Harrison—HOUSING—B.A. 6/10—Harrison Housing Auth., 786 Harrison Ave., Project N.J. 16-2, 54 unit housing. CD 1/25/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **PENNSYLVANIA**—State Hy. Dpt., North Office Bldg., Harrisburg.

Edward A. Daylor, P. O. Box 552, Coatesville, Pa., LB $356,329, widn 21,258 ft. road with plain c. conc. base and bit. surf. new base and existing pavement T.R. 122, Chester Co.;

The Kelley & Meyer Co., 1211 Gibson St., Youngstown, O., LB $276,838 bit. surf. 34,902 ft. incl. widn with granulated slag base T.R. 18; 551; 88; Lawrence Co.;

Asphalt Paving & Supply Co., P. O. Box 57, Norristown, Pa., LB $347,391, widn 18,769 ft. road with plain c. conc. base and bit. surf. new and existing base T.R. 309, Montgomery Co.;

James D. Morrissey, Inc., 9119 Frankford Ave., Phila. 14, Pa., LB $806,561 construct 8,812 ft. divided highway of plain c. conc. base with bit. surf. 33.08 ft. wide on each side of a concrete divisor, L.R. 67047 (2), Phila. Co. Bids May 23. CD 5/13.

▲ **PENNSYLVANIA**—State Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg.

George Vang, Inc., Grant Bldg., Pittsburgh, Pa., CA $2,203,631, construct 12,582 ft. rein.-con. divided hy. and deck plate girder bridge over Youghiogheny River, Rte. T.R. 119, Connellsville By-Pass, Fayette Co. Bids May 9, awarded May 26. CD 5/13, under LB.

▲ **PENNSYLVANIA**—State Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg.

Wagner Constr. Co., Kingston, Pa., CA, $1,487,922, construct deck plate girder bridge and I-beam bridge, 2,803 ft. divided hy. of rein.-con. 28 ft. wide each side of divisor, T. R. U. S. 22, Allentown By-Pass, Northampton Co. Bids May 2, awarded May 26. CD 5/9, under LB.

PENNSYLVANIA—State Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg.

Central Pennsylvania Quarry, Stripping & Constr. Co., Hazleton, Pa., CA, $729,539, construct 6,394 ft. divided hy. of rein.-con. with 4 ft. divisor, T. R. U. S. 22, Allentown By-Pass, Northampton Co. Bids May 2, awarded May 26. CD 5/9 under LB.

Alfa Constr. Co., Library Rd., Pittsburgh, Pa., LB sanitary sewers;

Moseman Constr. Co., Camp Hill, Pa., LB, sewage treatment plant, BEDFORD, PA. Bedford General Auth., Bedford, Pa. Total est. $500,000. CD 11/29.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Harwich Homes**, c/o A. H. Salkowitz, archt., 37-60 82 St., Jackson Heights, N. Y., Owner Builds. Approx. $1,000,000. 75 HOUSES on tract at 231 St. and Horace Harding Blvd., BAYSIDE, N. Y.

▲ **Lefrak Organization**, 97-25 64 Rd., Forest Hills, N. Y. Owner Builds. Approx. $2,500,000. 4 six-story Co-operative APARTMENTS for 300 families, Kissena Blvd. near Cherry St. and 45th Ave., FLUSHING, N. Y. CD 10/4.

▲ **Todd Estates Homes**, c/o Matern & York, archts., 90-04 161 St., Jamaica, N. Y. Owner Builds. Approx. $1,750,000. 71 HOUSES on tract at Roosevelt St. and Harding Pl., GLEN HEAD, N. Y.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction
(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects. ?

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
B.A. Bids Asked
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

▲ **Maris Constr. Corp.**, c/o C. G. De Neergaard, archt., 1560 Amsterdam Ave., New York 31, N. Y. Owner Builds. Approx. $3,500,000. 270 HOUSES on 92 acre tract, Tarrytown Rd., GREENBURG, N. Y.

Wilson Constr. Co., 305 Bedford St., Johnstown, Pa., CA. Approx. $500,000. 2 story, 66x129 ft., brick, stone, CATHEDRAL, JOHNSTOWN, PA. American Carpatho Russian Orthodox Catholic Church, Johnstown, Pa. Bids Apr. 23. CD 4/17.

O. H. Martin Co., 18 1st St., Sharpburg, Pa., CA. Approx. $500,000. RESTAURANT alterations, rear addn., PITTSBURGH, PA. Stouffer Restaurants, 1375 Euclid St., Cleveland, O.

† **Five Boro Corp.**, 2 E. Lafayette St., New York, N. Y. CA $704,000, ACADEMIC GROUP incl. 4 buildings, alterations, addns., renovating, ANNAPOLIS, MD. U. S. Naval Academy, P. Wks. Officer, Annapolis, Md. Bids May 1. CD 4/22.

Cedar Hill Constr. Corp., 1927 11 St. N.W., Wash., D. C., CA, $680,000, ten 3 story, brick, cinder block APARTMENTS, 1452-1478 Bangor St., N.E. and 1424, 1440, 1441-1441 Cedar St., N.E., WASH., D. C. Douglass Glen Gardens, Inc., 1927 11 St. N.W., Wash., D. C., Hilyard R. Robinson, 1927 11 St. N.W., Wash., D. C., archt. Awarded May 19.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
June 10, West Virginia

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Wise Contg. Co.**, 8 and Grace Sts., Richmond, Va., LB, $1,054,000, Supply warehouse at the Norfolk Naval Air Station, NOY 71287, Spec. 32856, NORFOLK, VA. P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids May 13. CD 4/17.

Central Contg. Co., Shawnee Park, Louisville, Ky., CA, $858,430. Defense HOUSING, Proj. VA3D1, NORFOLK, VA. Housing & Home Finance Agency, 900 N. Lombardy St., Richmond, Va. Bids Apr. 30. CD 5/16, under LB.

▲ **Onslow Building Co.**, Jacksonville, N. C. Owner Builds. $3,000,000. 362 HOUSING units, SWANSBORO, N. C.

▲ **New River Homes**, Swansboro, N. C. Owner Builds. $1,800,000. 231 HOUSING units, SWANSBORO, N. C.

▲ **Affiliated Builders, Inc.**, Swansboro, N. C. Owner Builds. $1,500,000. 207 HOUSING units, SWANSBORO, N. C.

C. F. Rule Constr. Co., 217 13 Ave. N., Nashville, Tenn., CA, $638,997, general constr. DINING HALL, NASHVILLE, TENN. Vanderbilt University, Nashville, Tenn. Bids May 15. CD 4/30.

† **McCorstin Constr. Corp.**, 3601 W. Vickery St., Fort Worth, Tex. CA $529,900, clearing Morganza Floodway, vicinity of control structure Pointe Coupee Parish, Inv. 52-212, LOUISIANA, U. S. Eng., foot of Prytania St., New Orleans 9, La. Bid Apr. 24, awarded May 20. CD 5/1, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Harry B. Graham Co., 702 Natl. Bank Bldg., Charlottesville, Va., CA, $893,000, HOSPITAL addn., alterations, CHARLOTTESVILLE, VA. Martha Jefferson Hospital & Sanatorium, 459 Locust Ave., Charlottesville, Va. Bids May 15. CD 5/22, under LB.

▲† **J. A. Jones Constr Co.**, 209 W. 4 St., Charlotte N. C., CA, $1,396,850, WAREHOUSE, ENGINEER EQUIP. MAINTENANCE SHOP and motor pool, Inv. 52-33, FORT EUSTIS, VA. U. S. Eng., foot of Front St., Norfolk, Va. Bids May 14. CD 5/23, under LB.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
June 17, Ohio
STREETS AND ROADS
June 17, Ohio

BIDS ASKED—BUILDINGS

▲ Ill., Joliet — CHURCH — B.A. 6/10 — St. Raymond Church, Raynor Ave., substructure for church. $2,000,000. McCarth & Smith, 69 W. Delaware St., Chicago, Zone 10, archts. CD 6/1/50.

▲ O., Cleveland—GARAGE and PARCEL POST ANNEX—B.A. 6/19—Owner, c/o H. A. Urban, Postal Inspector, Cleveland Post Office. Zone 1, 3 story postal garage and leased to United States Post Office, Cleveland, for 20 years. $3,000,000. Extended date. CD 4/25.

▲ O., Shaker Heights—SCHOOL—B.A. 6/20—Bd. Educ., S. Woodland and Woodbury Sts., 2 story, brick, stone Mercer Elementary School, Wimbledon and Hardwick Rds. $1,250,000. C. B. Rowley & Assoc., 2008 Keith Bldg., Cleveland, Zone 14, archts. CD 3/6.

SOON LETS CONTRACT—BUILDINGS

▲ Ind., Gary—PLANT—Standard Steel Spring Co., Corapolis, Pa., soon lets contract plant addn. $1,300,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

INDIANA—State Hy. Comn., State House Annex, Indianapolis,

Smith & Johnson, 1799 Kentucky Ave., Indianapolis 21, Ind. CA, $659,537, est. $696,333 bridge across Eagle Creek on W. 16 St. and underpass at C. C. C. and St. L. Ry., Indianapolis, Marion Co. Bids Apr. 22, awarded May 22. CD 4/25, under LB.

▲ ILLINOIS—State Div. Hys., Springfield, rejected bids May 16, 4.42 mi. bit. Ill. Route 127 Clinton Co., LB, $126,736; bit. resurf. 3.01 mi. Archer Ave. and 95 St. in Chicago Cook Co., LB, $187,019; conc. base course U. S. Rte. 45 and 1.1 mi. of same on U. S. Route 40, Effingham Co., LB, $490,729; c. conc. pavement 1.78 mi. Marked Ill. Route 14, Franklin Co., LB, $292,167; c. conc. base course 22.04 mi. Marked Rte. U. S. 45 in Effingham, Shelby, Cumberland and Cole Counties, LB, $845,000. CD 5/22, under LB.

ILLINOIS—State Div. Hys., Springfield,

Central Engineering Co., 2531 Rockingham Rd., Davenport, Ia., CA, $663,343, bit. resurf. 8.18 mi. Marked U. S. 6 Henry Co. Bids May 16, awarded May 26. CD 5/22, under LB.

▲ R. E. Dailey & Co., 9900 Northlawn St., Detroit, Mich. LB $3,593,000, est. $3,500,000. brick, steel, concrete water treatment plant, FLINT, MICH. City, Water Dpt., Flint, Mich. Bids May 15. CD 5/1.

BUILDINGS

LOW BIDS AND CONTRACTS

Mead-Jacobs Co., Park Bldg., Cleveland 14, O. and John M. Peters Constr. Co., 3971 Jennings Rd., Cleveland, O., Owner Builds. $600,000. 1 story, 66,000 sq. ft., brick OFFICE and WAREHOUSE for lease to Nash-Kelvinator Sales Corp. BROOKLYN, O.

▲ Brune-Harpenau Builders, Inc., 3075 Neisel Ave., Cincinnati, O., Owner Builds. Approx. $1,050,000. 70 one family 1½ story brick HOMES, Cincinnati-Louisville Pike, CINCINNATI, O. Awarded May 19. CD 4/29.

▲ District Constr. Co., 1010 Vermont Ave., Wash., D. C. CA. Approx. $3,000,000. 10 story, 230-suite APARTMENT with underground garage, 11820 Edgewater Dr., LAKEWOOD, O. Lakeview Apartments, Inc., 1010 Vermont Ave., Wash., D. C. Weinberg & Teare, Citizens Bldg., Cleveland 14, O., archts.

▲ M & M Builders, SOM Center Rd., Willoughby Twp., O. Owner Builds. $1,275,000, 75 ranch-type HOUSES, Sleepy Hollow Estates on 86-acre tract on SOM Center Rd. near Chardon Rd., WILLOUGHBY TWP., O.

▲ Wides Constr. Co., 3010 Kessler Blvd. E. Dr., Indianapolis, Ind., Owner Builds, $2,000,000, 90 HOMES, INDIANAPOLIS, IND.

▲† Corbetta Constr. Co., 208 S. La Salle St., Chicago, 4, Ill., LB, $2,694,500, 2 WAREHOUSES, heating plant, water distr. system, sanitary and storm sewers, Naval Supply Depot, GREAT LAKES, ILL. Ninth Naval Dist., Great Lakes Naval Training Center, Great Lakes, Ill. Bids May 9. CD 4/28.

▲ Evans Constr. Co., 1324 S. MacArthur Rd., Springfield, Ill. CA $1,500,000. 5 story, HOSPITAL and BOILER HOUSE, LINCOLN, Ill. Abraham Lincoln Memorial Hospital, 9 and Pine Sts., Lincoln, Ill. Bids Apr. 15. CD 3/17.

▲ Bessing Funk & Steinke, 228 N. LaSalle St., Chicago 1, Ill. Owner Builds. $2,800,000. one hundred and sixty 2 story HOMES, PARK RIDGE, ILL. Awarded May 16.

Clearing Industrial District, Inc., 38 S. Dearborn St., Chicago, 3, Ill., $850,000, 81,387 sq. ft. FACTORY, MELROSE PARK, ILL. Lindberg Street Treating Co., 222 N. Laflin St., Chicago, Ill. John S. Cromlin, 6455 S. Central St., Chicago, 38, Ill., archt. Awarded May 7.

▲ J. L. Simmons Co., 185 N. Wabash St., Chicago 1, Ill., LB $1,068,000. 1 and 2 story, brick, stone, Twp. High SCHOOL, NORTHFIELD, ILL. School Dist. 225, Northfield, Ill. Bids May 21. CD 5/9.

F. H. Taylor Co., 17360 Lahser St., Detroit, Mich. CA $700,000. (2nd unit) 2 story, bsmnt., brick, steel Frank Cody High SCHOOL, DETROIT, MICH. City, 1354 Broadway, Bd. Educ., Detroit, Mich. Bids May 5. CD 4/18.

Charles N. Board, 22427 Gratiot St., Detroit, Mich. CA $600,000. 2 story, bsmnt., brick, steel Cooke Elementary SCHOOL, Puritan St., DETROIT, MICH. City, Bd. Educ., 1354 Broadway, Detroit, Mich. Bids May 8. CD 2/29.

August B. Johnson Co., Flint, Mich. CA $547,824. 2 story, brick, steel elementary SCHOOL, FLUSHING, MICH. Bd. Educ., Mildred C. Heenan, secy., Flushing, Mich. Bids Apr. 23. CD 4/4.

Gordon-Begin, 18450 Joseph Campau Rd., Detroit, Mich. Owner Builds. $700,000. 45 brick ranch HOUSES, OAK PARK, MICH.

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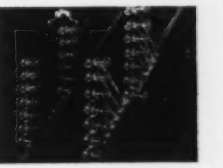

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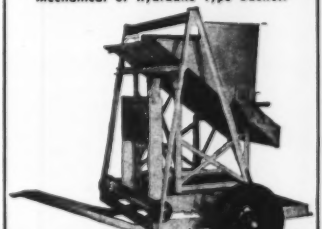

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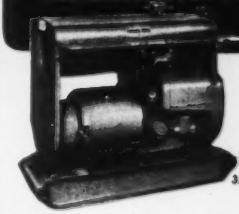

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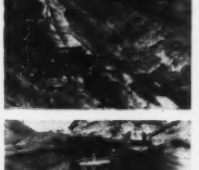

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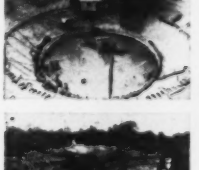

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WEST OF MISSISSIPPI

BIDS ASKED—BUILDINGS

Kan., Turner—SCHOOL—B.A. 6/11—School Dist. 3, Wyandotte Co., Kansas City. Turner High School, $793,000. J. W. Radotinsky, 1401 Fairfax Trafficway, Kansas City, Kan., archt. CD 7/10/51.

▲ **Kan., Topeka**—HOSPITAL—B.A. 6/17—Menninger Foundation, c/o David Neesivanger, pres., 3617 W. 6 St., general, heating, plumbing, air conditioning and electrical contracts for 100-bed hospital, $1,-300,000. Plans deposit $25. Griest & Ekdahl, archts., and Finney & Turnipseed, engrs., both New England Bldg., Scott & Kinney, 101 W. 11 St., Kansas City, Mo., mech. engrs. CD 11/21/51.

Tex., Big Spring—COURT HOUSE—B.A. 6/17—Howard Co., c/o Court House, 4 story bsmnt., court house, $750,000. Plans deposit $50. Puckett & French, 505 Petroleum Bldg., Lubbock, archts. CD 8/23.

▲† **Okla., Fort Sill**—BARRACKS—B.A. 6/19—U. S. Eng., Box 61, Tulsa, Zone 2. Lot No. 1, six 3-story bsmnt., 37,500 sq. ft. barracks, incl. steam heating, etc., $2,000,000; Lot No. 2, 7 three-story bsmnt., 37,500 sq. ft. concrete block barracks, incl. steam heating, etc. $2,500,000; Lot No. 3, 8 three-story 37,500 sq. ft. concrete block barracks, incl. steam heating, etc., $2,750,000; Lot No. 4, grading, leveling, streets, parking area, c. conc. pavements, underground water and sewer lines, etc. $200,000; Lot No. 5, exterior underground and above ground electrical distr. sys. in housing and military area, $75,000, Inv. No. Eng 34-066-52-69. CD 9/6.

▲† **Tex., Fort Hood**—BARRACKS—B.A. 6/19—U. S. Eng., 100 W. Vickery St., Fort Worth, six 200-man masonry, concrete frame barracks, incl. appurtenances, Inv. No. Eng 41-443-52-51. $2,000,000. CD 12/28/50.

▲ **Colo., Colorado Springs**—STEAM PLANT—B.A. 6/27—City, City Hall, wiring North Steam Plant, $2,500,000. Lutz & May, 819 Finance Bldg., Kansas City, Mo., engrs.

Minn., St. Paul—Y.M.C.A. BUILDING—B.A. 6/30—St. Paul Young Men Christian Assn., J. Caldwell, pres., 475 Cedar St., 2 story, bsmnt., 104x128 ft., Y.M.C.A. bldg., Arcade St., and Magnolia Ave. $600,000. Bergstedt & Hirsch, 695 Endicott Bldg., archts. CD 2/12/47.

▲ **Tex., Paris**—POWER PLANT—Bids Asked—Texas Power & Light Co., Interurban Bldg., Dallas, 80,000 kw. main electric power plant, $4,800,000; electric sub-station, $375,000, 40 mi. northeast of Sulphur Springs. CD 3/13.

SOON LETS CONTRACT—BUILDINGS

▲ **Tex., Fort Worth**—PLANT—Chicago Pneumatic Tool Co., 6 E. 44 St., New York, N. Y., soon lets contract 130,000 sq. ft. tool manufacturing plant. $2,000,000. Walter Kidde Engineers-Southwest, Inc., 1205 Holman Ave., Houston, engr. CD 4/18.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MINNESOTA**—State Hy. Dpt., 1246 University Ave., St. Paul.

A. L. Alley & Sons, Faribault, Minn. and **Fischer Constr. Co.**, Farmington, Minn. CA $1,081,231. Grading, grav. base road-mixed bit. surf. bridge 13.6 mi. between Lake City and Red Wing Goodhue Co.;

Alexander Constr. Co., 4641 Hiawatha Ave., Minneapolis, Minn. CA $784,718. Concrete base, grav. base plant-mixed bit. surf., 8.1 mi. between North Jct. TH 169 in St. Louis Park and Jct. 52 in Robbinsdale, Hennepin Co. CD 5/15, under LB.

City, R. L. Van Nocker, mgr., Albert Lea, Minn. rejected bids May 12 concrete paving, ALBERT LEA, MINN. LB $90,333. CD 5/7.

Lysne Constr. Co., Blooming Prairie, Minn. CA $72,484. Concrete pavement and curb, AUSTIN, MINN. City, J. H. Weiland, recdr., Austin, Minn. Bids May 2. CD 11/14/50.

MISSOURI—State Hy. Comn., Jefferson City.

Stupp Bros. Bridge & Iron Co., 3800 Weber Rd., St. Louis, Mo. and **Mississippi Valley Structur ! Steel Co.**, 3117 Big Bend Rd., St. Louis, Mo. LB $647,006. Superstructure steel spans approx. 2,000 tons, St. Louis City.

American Bridge Co., 1221 Locust St., St. Louis, Mo. LB $643,414. Superstructure steel spans, approx. 1,900 tons, St. Louis City. Bids May 23. CD 5/7.

Missouri Pacific R. R. Co., W. H. Hobbs, ch. engr. 1218 Olive St., St. Louis 3, Mo. Owner Builds. $720,000, rein.-con. trestle with steel bridges over streets and Mill Creek connecting Lesperance St. and 12 St. yards at 600 S. 9 St., ST. LOUIS, MO. CD 5/15.

▲† **Al Johnson Constr. Co.**, Foshay Tower, Minneapolis, Minn., LB $4,899,815 hydroelectric power plant at Blakely Mountain Dam, Garland Co., ARKANSAS. U. S. Eng., P. O. Box 60, Vicksburg, Miss. Bids May 22. CD 4/14.

▲† **Johnson, Drake & Piper, Inc.**, 1138 Baker Bldg., Minneapolis, Minn.; **Foley Bros., Inc.**, 900 New York Bldg., St. Paul, Minn.; **C. F. Lytle Co.**, 250 Insurance Exchange, Sioux City, Ia., **Donovan Constr. Co.**, 1725 Carroll St., St. Paul, Minn., and **Winston Bros. Co.**, Northwestern Bank Bldg., Minneapolis, Minn., LB $13,297,580, spillway structure and gates for Garrison Dam and Reservoir Proj., at Riverdale, Inv. 52-36, NORTH DAKOTA. U. S. Eng., Fort Lincoln, P. O. Box 300, Bismarck, N. D. Bids May 16. CD 4/24.

† **Secor Building Co.**, 20 NE 26 St., Oklahoma City, Okla. LB $686,549. training bldg., steam distr. Smoky Hill Air Force Base, Inv. 523o, SALINA, KAN. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids May 10. CD 4/29.

▲ **TEXAS**—State Hy. Dpt., State Hy. Bldg., Austin,

Austin Road Co., P.O. Box 1590, Dallas, Tex., LB $529,704, widn., c. conc. pavement, hot mix b. conc. pavement 14.68 mi. Hy. U. S. 67, FI 431 (8), Hopkins Co.;

Brown & Root, Inc., P.O. Box 3, Houston, Tex., LB $185,159, grading, structures, base, surf. 11.201 mi. Hy. FM 762, Proj. S 1822 (1), Fort Bend and Brazos Counties;

E. B. Darby & Co., P.O. Box 467, Pharr, Tex., LB $306,340. widn, reconstruct flexible base, structures, 2 course surf. tr. 6.039 mi. Hy. U. S. 281, F 301 (4), Hidalgo Co.;

J. M. Dellinger, Inc., Box 4227, Corpus Christi, Tex., LB $144,639. flexible base, b. conc. pavement 5.576 mi. Hy. U. S. 77, Proj. F 749 (1), Nueces Co.;

Ivan Dement, P.O. Box 1787, Amarillo, Tex., LB $113,972. grading, structures, base, surf. 9.092 mi. Hy. FM 1151, Proj. V 1298-2-2, Armstrong Co.;

M. B. Killian, P.O. Box 1981, San Antonio, Tex., LB $211,836. two-course surf. tr. and T. & N. O. R.R. overpass 3.013 mi. Hy. Loop 13, F 1095 (1), Bexar Co.;

Killian-Keller Co., P.O. Box 1981, Fredericksburg, Tex., LB, $216,124, flexible base, 2 course surf. tr. 9.656 mi. Hy. U. S. 90, Proj. C 22-2-8, Terrell Co.;

Ernest Loyd, P.O. Box 1120, Fort Worth, Tex., LB, $198,579, widn structures, flexible base, one course surf. tr. 8.303 mi. Hy. U. S. 80, Proj. FI 77 (3), Taylor Co.;

Public Constr. Co., P.O. Box 380, Denton, Tex., LB, $129,064, asphaltic pavement 25.85 mi. Hy. SH 31, Proj. C 164-1, 2 and 3-7, 4 and 6, Henderson Co.;

South Texas Const. Co., P.O. Box 3536, Corpus Christi, Tex., LB, $192,101, widn., grading, flexible base, shoulders and b. conc. 13.972 mi. Hy. U. S. 281, Proj. C 255-3 and 4-6 and 19, Brooks Co.; LB, $62,417. c. conc., b. conc. 0.734 mi. Hy. SH Proj. C 188-4 and 5-4 and 8, Brazoria Co.;

Trotti & Thomson, Inc., P.O. Box 70, Beaumont, Tex., LB, $182,093. flexible base, 2 course surf. tr. 6.023 mi. Hy. SH 327, Proj. S 1749 (1), Hardin Co. Bids May 21. CD 4/29, 5/6 and 5/12.

Utilities Constr. Co., 1208 Philtower bldg., Tulsa, Okla., LB, $99,643, est. $475,000. 104 mi. pole telephone lines, facilities, at Henderson, Rusk Co., TEXAS. Eastex Telephone Co-operative, Ind., Henderson, Tex. Bids May 15. CD 4/30.

TEXAS—State Hy. Dpt., State Hy. Bldg., Austin,

Dudley R. Cloud & Son, 1903 Transit Tower, San Antonio, Tex., LB $577,321. Arroyos Valero and Burro bridges on Hy. U. S. 83, Proj. C-38-4-17, Zapata Co.;

T. W. Hansen, D. N. Anderson & James W. Dunn, P.O. Box 618, El Paso, Tex., LB, $849,149, P. & S. F. Ry. overpass and approaches, structures and concrete pavement, Hy. U. S. 80, Proj. UI 439 (25), El Paso Co. Bids May 21. CD 4/29.

† **J. B. Mayfield**, 2115 Forest Park Blvd., Fort Worth, Tex., LB, $539,987, est. $599,000. drainage structure and channel excavation, Part III, Fort Worth Floodway, Trinity River and Tributaries, CIVENG 41-443-52-52, TEXAS. U. S. Eng., 100 W. Vickery Blvd., Fort Worth, Tex. Bids May 20. CD 4/24.

Atlantic Refining Co., 912 N. Port St., Corpus Christi, Tex., Purchase and Hire. Approx. $552,530. crude oil pipe line in area, CORPUS CHRISTI, TEX. CD 4/30.

† **Brown & Root, Inc.**, Box 3, Houston, Tex., CA. $717,291, addnl. paving, earthwork, Cont. NOY 71643, CORPUS CHRISTI, TEX. U. S. Govt., Naval Air Station, Corpus Christi, Tex. Bids Apr. 9. CD 4/16.

BUILDINGS

LOW BIDS AND CONTRACTS

Viking Constr. Co., 2624 E. Lake St., Minneapolis, Minn. LB $723,973. general contract South Side Grade SCHOOL, West Side Grade SCHOOL, Newyork Grade SCHOOL addn. AUSTIN, MINN. Bd. Educ., Independent Consolidated School Dist. 27, S. L. Coumbe, clk., Austin, Minn. Bids May 20. CD 4/23.

Havens Steel Co., 1713 Crystal St., Kansas City, Mo. structural steel contract;

Laclede Steel Co., Arcade Bldg., St. Louis, Mo. rein.-forcing bars contract for SERVCE BLDG. and TRUCK TERMINAL, Woodsweather Rd. and Liberty St., KANSAS CITY, MO. Total est. cost $600,000. Pacific Intermountain Express Co., Truck Lines, Inc., 1401 Independence Ave., Kansas City, Mo. Bids May 21. CD 10/15/51.

Fruin-Colnon Contg. Co., 1706 Olive St., St. Louis 3, Mo. CA $500,000. 1 story, 62x192 ft. engineering LABORATORY on 28.7 acres tract, northeast corner of LAMBERT FIELD IST. LOUIS 21 P.O., MO. McDonnell Aircraft Corp., Lambert-St. Louis Municipal Airport, Robertson 21, Mo. CD 2/26.

▲ **Madsen Constr. Co.**, 2110 Nicollet Ave., Minneapolis, Minn., CA. $1,412,800, 3 and 4 story, X-shape, 1 wing approx. 37x157 ft., 1 wing 105x158 ft., 1 wing 52x122 ft., 1 wing 65x183 ft. MOTHERHOUSE, ABERDEEN, S. D. Sisters of the Presentation of the Blessed Virgin Mary, Aberdeen, S. D. Bids May 6. CD 5/21, under LB.

▲ **Praver & Sons**, 162-35 Willets Point Blvd., Bayside, N. Y. CA $20,000,000. RESIDENCES incl. 2,250 units, multiple dwellings, business center, Craig Rd., 107 St., Ruskin Rd. and Longview Rd. near KANSAS CITY, MO. Blue Ridge Land Co., c/o Enos A. Axtell, atty., Lathrop Bldg., Kansas City, Mo. Hare & Hare, 114 W. 10 St., Kansas City, Mo., development planners.

Dondlinger & Son, 1206 E. Lincoln St., Wichita, Kan. CA, $898,439. general contract HOTEL, HUTCHIN-

SON, KAN. Hutchinson Metropolitan Hotel Co., Inc. Wiley Bldg., Hutchinson, Kan. CD 4/23, under LB.

† Ninth Naval Dist., Great Lakes, Ill. rejected bids May 12, 196 military housing units, Naval Air Sattion, OLATHE, KAN. CD 4/29.

Walter E. Wirtz, P.O. Box 906, Amarillo, Tex., LB $687,703, est. $650,000. Y.M.C.A. BLDG., AMARILLO, TEX. Young Mens Christian Assn., Amarillo, Tex. Bids May 20. CD 4/30.

▲ Beck-Williamson, Inc., Harlingen, Tex. CA. $444,950, 60 two-bedroom unit HOUSING; CA $560,000, 80 two-bedroom unit HOUSING;

F. A. Hunter, 3015 Wroxton St., Houston, Tex. CA. $355,200, 20 three-bedroom units and 25 two-bedroom unit HOUSING; CA $425,100, 60 two-bedroom unit HOUSING, HARLINEGEN, TEX. Federal Housing Admin., 610 S. Flores St., San Antonio, Tex., Grand total $1,785,250. Bids May 9. CD 5/7.

Huddleston-Seamans & Assoc., 14 and Warren Sts., Kingsville, Tex., CA. $525,000. 70 programmed defense HOUSING units, KINGSVILLE, TEX. Federal Housing Admin., 610 S. Flores St., San Antonio, Tex. CD 11/1/51.

Riedesel-Lowe Co., P.O. Box 941, Cheyenne, Wyo., CA, $396,784, Junior High SCHOOL, CASPER, WYO. Natrona County High School Dist., Independent School Dist. 2, Casper, Wyo. Bids May 7, awarded May 19. CD 5/16, under LB.

▲† Mead & Mount Constr. Co., Railway Exchange Bldg., Denver, Colo., LB, $3,123,000 general construction new building to house National Bureau of Standards LABORATORIES, BOULDER, COLO. National Bureau Standards. 19 and F Sts. N.W., Wash., D. C. Bids May 22. CD 5/9.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
June 18, 19, 20 California
STREETS AND ROADS
June 18, 19 California

† Calif., March Air Force Base—REFUELING FACILITIES—B.A. 6/24—U. S. Eng., 751 S. Figueroa St., Los Angeles, refueling facilities addns., at ENG 04-353-65-52-68, $500,000. Plans deposit $25. CD 5/21/51.

BIDS ASKED—BUILDINGS

† Calif., Camp Pendleton—B.A. 6/27—Dpt. Navy, San Diego, expansion field training facilities (rifle range) at Camp Pendleton Marine Barracks NOY 2689, Spec. 33879, $500,000. CD 5/23, under Unclassified.

▲† Calif., Camp Pendleton—FIELD TRAINING FACILITIES—B.A. 6/13—Dpt. Navy, San Diego, expansion field training facilities at Camp San Mateo, Camp Pendleton Marine Barracks, NOY 72621, Spec. 33811, $1,000,000. Plans deposit $170.

SOON LETS CONTRACT—BUILDINGS

Calif., Los Angeles—PLANT—B. F. Goodrich Co. 5400 E. Olympic Blvd., soon lets contract, rubber mfg. plant addn. $704,000. CD 5/13.

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

UTAH—State Road Comn., State Capitol, Salt Lake City.

LeGrand Johnson Constr. Co., Logan, Utah, CA, $600,598, est. $593,869, 3 in. plant mixed bit. surf. 4.324 mi. road between Rattlesnake Pass and Snowville, FA Proj. NO. FI-109 (14), Box Elder Co.

W. W. Clyde Constr. Co., Springville, Utah, CA. $162,536, est. $157,955, bit. surf. 5.55 mi. road between Redwood Rd. and Magna, State Proj. 1370, Salt Lake Co. Bids May 20. CD 5/12.

APIZONA—State Hy. Dpe., 17 Ave. and Jackson St. Phoenix.

Fisher Contr. Co., Box 4035, Phoenix, Ariz., LB $595,377, select material aggregate base, bit. 4.34 mi. Globe-Show Low Highway Navajo Co.;

Sam Xavier Rock & Sand Co., Box 1031, Tucson, Ariz., LB, $79,814, select material, aggregate base, bit. plant mix 0.8 mi. St. Marys Rd., Pima Co.

▲† Nomellini Constr. Co., P.O. Box 1177, Stockton, Calif., CA. $1,472,120, admin. bldg., housing, etc. utilities at Stead Air Force Base, Eng 04-203-52-57, RENO, NEV. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids May 15, awarded May 21. CD 5/21, under LB.

Kemper Constr. Co., 3701 Overland Ave., Los Angeles, Calif. LB, $553,739, est. $600,000, 6,400 ft. 6 in. concrete lining of Sultan River-Lake Chaplain reservoir tunnel, EVERETT, WASH. City, City Hall, Everett, Wash. Bids May 21. CD 4/30.

▲ CALIFORNIA—State Div. Hys., P. Wks. Bldg., Sacramento.

Gordon H. Ball & San Ramon, Valley Land Co., 685 Delaware St., Berkeley, Calif., LB, $552,246, road constr. 4.6 mi. between Pixley and Tipton, Tulare Co.;

Lee J. Immel, P.O. Box 175, San Pablo, Calif., LB $246,780, constr. 0.6 mi. Standard Ave. in Richmond, Contra Costa Co.;

Brighton Sand & Gravel Co., P.O. Box 2604, Sacramento, Calif., LB, $348,143, constr. 5.8 mi. El Centro Road between Sacramento River Levee and Elkhorn Road, Sacramento Co.;

Ukropina, Polich & Kral, Box 425, Baldwin Park, Calif., LB, $155,225, plant mix surf. 1.9 mi. at 5 locations at Newman, Crows Landing and Westley, Stanislaus Co. Bids May 21, CD 4/30.

CALIFORNIA—State Div. Hys., P. Wks. Bldg., Sacramento.

Eaton & Smith, 1215 Michigan Ave., San Francisco, Calif., LB, $516,184, rein.-con. arch culvert, road work at Rattlesnake Creek south of Cummings, Mendocino Co. Bids May 21. CD 4/30.

Vido Artukovitch, 4836 Victria Ave., Los Angeles, Calif. CA, $908,706 construct Sect. "B" Valley Outfall Relief Sewer, Woodley to Van Owen. CD 5/22, under LB;

Edward Green, 3001 Coolidge Ave., Los Angeles, Calif., CA $617,050, constr. Section "A" Valley Outfall Relief Sewer Koster to Woodley Ave., LOS ANGELES, CALIF. City, City Hall, Los Angeles, Calif. Bids May 7. CD 5/19, under LB.

BUILDINGS
LOW BIDS AND CONTRACTS

▲ D. O. Norton & Son, 3022 N. 26 St., Phoenix, Ariz. LB, $1,385,493, est. $1,200,000, 2 story, rein.-con Yuma High SCHOOL addns., YUMA, ARIZ. Yuma Union High School Dist., Yuma, Ariz. Bids May 19. CD 4/15.

Lease & Leigland, 1501 N. 35 St., Seattle, 3, Wash., CA, $832,305, general contract 3 story 43x271 ft., rein-con. cell block addn. at State REFORMATORY, MONROE, WASH. State Dpt. P. Institution, Olympia, Wash. Bids May 14. CD 5/20, under LB.

▲ A. V. Petersen, Box 2368, Portland, Ore., CA, $1,211,549, remodel Jefferson HIGH SCHOOL;

A. C. Edmon, 4120 S.E. Gladstone St., Portland, Ore. CA. $571,800, construct Clinton Kelly SCHOOL, PORTLAND, ORE. School Dist. 1, 631 N.E. Clackamas St., Portland, Ore., Bids May 21. CD 5/7.

T-S Constr. Engineering, Inc., 600 S. St. Paul Ave., Los Angeles, Calif., CA, $500,000, Industrial PLANT addns., factory, carpenter shop, mill office and office, EAST LOS ANGELES, CALIF. Pacific Tube Co., 5710 Smithway St., East Los Angeles, Calif. Albert C Martin & Assocs., 333 S. Beaudry St., Los Angeles, Calif., engrs.

Dollard Homes, Inc., 13421 San Antonio Dr., Norwalk, Calif., CA, $786,400, 73 frame stucco DWELLINGS Knoxville, Ladoga, Pagentry, and Rosebay Sts., Lakewood, NORTH LONG BEACH, CALIF. Lakewood Plazza Six, Inc., 13421 San Antonio Dr., Norwalk, Cali

John E. Branagh & Son, 105 Sheridan Ave., Piedmont Calif., LB, $634,000, New Washington Elementary SCHOOL, Shafter and 61 Sts., OAKLAND, CALIF. Bd Educ., 1025 Second Ave., Oakland, Calif. Bids May 20. CD 5/2

▲ F. E. Young Constr. Co., 2141 Main St., San Diego Calif., LB, $1,693,500, est. $1,000,000, 3 story rein.-con. Public LIBRARY, SAN DIEGO, CALIF. City Civic Center, San Diego, Calif. Bids May 20. CD 4/8

CANADA

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

▲ Preload Co. of Canada Ltd., 7325 Decarie St., Montreal, Que., CA, $1,582,736, water reservoir and necessary valve and pumping equip., supply, layin 73,920 ft. 24-in. inside diam. prestressed pressure pipe and specials, MOOSE JAW, SASK. Municipality, Moose Jaw, Sask. J. E. Poston, City Hall, supt. P. Wks.

BUILDINGS
LOW BIDS AND CONTRACTS

▲ Christensen & Macdonald, Tegler Bldg., Edmonton, Alta., CA, $1,465,641, general contract;

Cotter Bros. Ltd., Thornton Court, Edmonton, Alta., CA, $396,000, plumbing, heating and ventilating Eastglen High SCHOOL, EDMONTON, ALTA. Edmonton Public School Bd., Civic Block, Edmonton, Alta. Bids May 7, awarded May 20. CD 5/1.

T. H. Houg, 7124 111 St., Edmonton, Alta., Owner Builds, $500,000, 49 frame, stucco DWELLNGS, EDMONTON, ALTA. Awarded May 21.

▲ P. W. Graham & Sons Ltd., Moose Jaw, Sask. CA. $1,400,000. officers' and non-commissioned QUARTERS, MESSES and BARRACK block, at air force base, NAMAO, ALTA. Defence Construction Ltd., Kensington Bldg., Winnipeg, Man. Bids Mar. 4, awarded Apr. 16. CD 2/15.

Commonwealth Constr. Co., 300 Royal Bank Bldg., Winnipeg, Man. LB $997,228. TELEPHONE bldg., incl. 1 story, 230x690 ft. warehouse, 3 story, 155x 230x47 ft. office, service garage, parking garage, Ellice Ave., WINNIPEG, MAN. Manitoba Telephone System, 166 Portage Ave. E. Winnipeg, Man. Bids May 21. CD 5/6.

J. Cooke Ltd., Aldershot, Ont., Owner Builds, $890,000, 75 DWELLINGS, Glen Acres Zone, ALDERSHOT, ONT.

FOREIGN

BUILDINGS
LOW BIDS AND CONTRACTS

▲ Oscar Kohorn & Co. Ltd., 501 Fifth Ave., New York 17, N. Y., CA. Approx. $1,000,000. three factoriees, pulp to be produced in one unit, rayon yarn in another and rayon woven into finished textiles in the third, MANILLA, PHILIPPINES. Govt. of the Philippines Associated with contractor, Manila, Philippines.

(Proposal Advertisements see pp. 120 to 123)

Getting Bolts from the Blue

A large Mid-Western factory* was constantly filled with dense blue smoke generated by the high temperatures and cutting oil from sixty bolt making machines. The complicated and inefficient filtering system used required constant maintenance and allowed heavy oil entrainment into the air ducts.

Upon consultation with Farr Field Engineers, this company installed 2" Type 44 and 2" Type 68 FAR-AIR** filters about 8" apart in the air duct.

Results of this installation were the elimination of oil entrainment, a cut of 80% in maintenance and a 50% reduction in required blower power . . . *plus* substantial savings in simplified duct work. Now, bolts are being made in clean air instead of blue smoke, and this company is finding many more uses for FAR-AIR filters in their factories.

If you have an air filtration problem, consult a Farr field engineer for the proper solution. Write for complete information to Farr Company, P.O. Box 10187, Airport Station, Los Angeles 45, California.

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

† **Vt., Alburg Springs**—B.A. 6/10—General Services Admin., Public Buildings Service, 19 and F Sts., N.W. Wash., D. C., sewage disposal sys. at U. S. Border Station, Vermont Hy. (Springs Rd.), Proj. 43-002. CD 5/21.

† **Conn., Windsor Locks**—RUNWAY EXTEN.—B.A. About 6/24—U. S. Eng., 857 Commonwealth Ave., Boston, 15, Mass. constr. runway extension and taxiway, Bradley Field, ENG 19-016-52-69. CD 4/9.

BIDS ASKED—BUILDINGS

† **Mass., Chicopee**—SCHOOL—B.A. 6/17—Housing & Home Finance Agency, 346 Broadway, New York, N. Y., school, Westover Air Force Base, Proj. Mass 51-C Fed. 3, $561,000. Plans deposit $25, refundable. Henry J. Tessier, 220 Dwight St., Springfield, archt. CD 9/24/51.

† **Me., Winter Harbor**—TERMINAL EQUIPMENT—B.A. 6/18—First Naval Dist., 495 Summer St., Boston, Mass., terminal equipment bldg., Naval Communication Station, $109,000. Jas. C. Saunders & Assoc., 477 Congress St., Portland, archts. CD 10/31/51.

Mass., Whitman—SCHOOL—B.A. 6/18—Town, Supt. Schools, 1 story school, Forest St. $430,000. Plans deposit $25 refundable. Rich & Rucker, 45 Newbury St., Boston, archts. CD 8/10/51.

† **Mass., Natick**—CLIMATIC CHAMBERS—B.A. About 6/28—U. S. Eng., 857 Commonwealth Ave., Boston, Zone 15, climatic chambers, in Climatic Bldg., Quartermaster Research and Development Laboratory, on shores of Lake Cochituate, south of Kansas St., approx. ¼ mi. from center of town, ½ mi. south of Worcester Turnpike, State Rte. 9, Eng. 19-016-52-63. CD 12/18/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MAINE—State Hy. Comn., State House, Augusta,
J. R. Cianchette, Pittsfield, Me. CA, **$482,706**, bit. macad. road 4.366 mi., F.A. Proj. FI 01-4 (3) Passadumkeag and Enfield;
W. H. Hinman, Inc., North Anson, Me. CA, **$256,497**, b.-conc. 1.245 mi. F.P. Proj. U 026-1 (3) and U 026-2 (2), Rockland. Bids May 21. CD 5/15.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston;
Bethlehem Steel Co., 75 Federal St., Boston, Mass., CA, **$2,408,149**, est. $2,500,000. Contr. C-2B steel superstructure for elevated hy., J. F. Fitzgerald Expressway, Boston. CD 3/31, under LB.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston;
Harris Structural Steel Co., 419 Fourth Ave., New York, N. Y., CA, **$2,151,969**, est. $2,000,000. Contr. H-2B portion steel superstructure elevated hy. Commerce St. to Oliver St., Boston.
Bethlehem Steel Co., 75 Federal St., Boston, Mass. CA, **$2,125,944**, est. $1,200,000. Contr. H-2A portion steel superstructure elevated hy. North St. to Commerce St., Boston,
V. Barletta Co., 10 Whipple Ave., Roslindale, Mass. CA, **$2,935,218**, est. $1,800,000. Contr. C-3, D-3 and H-3, deck electrical work, snow melting sys. for single and double deck elevated hy., Charles River Bridge to Oliver St., Central Artery, J. F. Fitzgerald Expressway, Boston. Grand total $7,213,131. CD 4/25, under LB.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston;
Bethlehem Steel Co., 75 Federal St., Boston, Mass. CA, $1,857,711, est. $1,500,000. Contr. C-2C steel superstructure for elevated hy. Central Artery, J. F. Fitzgerald, Boston. CD 4/7, under LB.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston;
Mt. Vernon Bridge Co., Mt. Vernon, O. CA, **$2,296,905**, est. $2,175,000. portion of steel superstructure for elevated hy. Haymarket Square to North St. Central Artery, Fitzgerald Expressway, Contr. D-2, Boston. CD 4/18, under LB.

Wes Julian Constr. Corp., 850 Providence Hy., Dedham, Mass. LB, **$149,650**, est. $212,000. sewer work, Sunnyside area, North Lexington, LEXINGTON, MASS. Dpt. P. Wks., Town Hall, Lexington, Mass. Bids May 19. CD 5/14.

Coleman Bros. Corp., 40 Central St., Boston, Mass. CA, **$197,960**, est. $200,000. sanitary sewers, storm water drains, various streets, LOWELL, MASS. City Supt. Streets, City Hall, Lowell, Mass. CD 11/26/45.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **McCutcheon Co.**, 250 Stuart St., Boston, Mass. LB, **$1,132,020**, est. $1,000,000. RESIDENCE addn. for young women, Berkeley and Appleton Sts., BOSTON, MASS. Boston Young Women's Christian Assn., 140 Clarendon St., Boston, Mass. Bids May 22. CD 5/6.

Deerfield Academy, Dr. F. L. Boyden, headmaster, Deerfield, Mass. Owner Builds, **$400,000**. DORMITORIES A and C. DEERFIELD, MASS. Hampson & Fisher, 20 Backman Ave., Pittsfield, Mass., resident archt. William & Geoffrey Platt, 101 Park Ave., New York, N. Y., archts. CD 9/27/51.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

New York—B.A. 6/13—Triborough Bridge & Tunnel Auth., Administration Bldg., Randall's Island, New York 35, N. Y. Cont. No. CM-2, Cross Bay Parkway Viaduct, repairs to viaduct and bridge piers, Queens Boro. Plans deposit $5. Madigan-Hyland, 28-04 41 Ave., Long Island City, consult. engrs.

D. C., Wash.—B.A. 6/18—Govt. of District of Columbia, Director of Highways, District Bldg., 14 and E Sts. N.W., Wash. 4, D. C., certain grading, drainage for extension of East Capitol Street Bridge from 19 St. to Kingman Lake, FS-42 (3). Plans deposit $10; adv. ENR 6/5. CD 11/21.

Md., Baltimore—B.A. 6/18—Bd. Estimate of Mayor & City Council, at office of Comptroller, 503 Municipal Bldg., Zone 2, furnishing, constr. substructure and superstructure of bridge, consisting of composite wide flange beam spans and concrete piers, abutments, known as Ivy Mill Bridge over North Branch of Patapsco River, ½ mi. north-east of intersection of Deer Park and Nicodemus Rds. in Baltimore and Carroll Counties for Dpt. P. Wks., Bureau Water Supply; adv. ENR 6/5. CD 11/23/51.

† **Pa., Pittsburgh**—BUILDINGS, etc.—B.A. About 7/8—U. S. Eng., 1131 N. Broad St., Phila., Zone 1, demolition and removal from site of sewage disposal facilities incl. a septic tank, trickling filter bed and secondary basin; relocating existing 1 story, 28x45 ft. bldg.; 1 story, 50x96 ft. warehouse; 1 story refrigerated storage bldg.; 1 story, 17x26 ft. paint storage bldg.; 1 story, 44x126 ft. air installations office shops; alterations to existing bldg. to provide motor repair shop; 400 lin. ft. storm sewer, 1,530 lin. ft. sanitary sewer, 1,600 lin. ft. 6 in. water line, approx. 200 lin. ft. 1¼ and 1½ in. water service pipe and approx. 110 lin. ft. 2 in. gas line, approx. 3,800 sq. yd. bituminous pavement and approx. 160 lin. ft. highway guard fence; approx. 3,550 lin. ft chain link security fencing; security lighting system, at Greater Pittsburgh Air Force Base, Coraopolis, Inv. No. ENG 36-109-52-697. Plans deposit $10. CD 9/28.

BIDS ASKED—BUILDINGS

† **D. C., Wash.**—DORMITORIES—B.A. 6/10—General Services Admin., Public Bldgs Service, General Services Bldg., Wash., D. C., expansion joint and brickwork for Women's Dormitories 4 and 5, Howard University, Project 49-12. CD 7/23/48.

N. Y., Mariners Harbor—HOUSING—B.A. 6/10—New York City Housing Auth., 63 Park Row, New York, Zone 38, general constr., heating and ventilating, electrical work, plumbing, furnishing, erecting elevators for Mariner's Harbor Houses (Proj. No. NY 50-20) within the area bounded generally by Grand View Ave., Roxbury St., Lockman Ave., Continental Pl., Richmond Boro. Plans deposit $75.

† **N. Y., Northport**—BOILERS—B.A. 6/10—Veterans Admin., Vermont Ave. between H and I Sts., N. W., Wash. 25, D. C., repair 2 boiler, incl. excavating, concrete work, etc., for New York Veterans Admin. Hospital. CD 5/22/45.

Pa., Meadville—COURT HOUSE—B.A. 6/12—Bd. Comrs. Crawford Co., Meadville, two 40x50 ft. and one 53x75 ft. addns. to stone court house, remodel interior. $850,000. Plans deposit $35. Edward S. Hanna & D. Fuller Stewart, Merchant Bank Bldg., archts. CD 5/20.

▲ **D. C., Wash.**—HOUSING—B.A. 6/17—National Capital Housing Auth., 1728 L St. N.W., Wash., D. C., Richardson Dwellings Housing Project DC-1-17 52 St. and 53 St. N.E. Plans deposit $30. Glaser & Gray, 105 Newberry St., Boston, Mass., archts. CD 5/21.

N. Y., New York—HOUSING—B.A. 6/27—New York City Housing Auth., 63 Park Row, Zone 38, foundations and general constr., heating and ventilating, electrical work, plumbing and elevators for Stephen Foster Houses, Proj. NYS 30. Sect. 11, incl. Bldgs. 6 to 10 inclusive in area bounded generally by W. 112 St., S Ave., W. 113 St., Lenox Ave. and generally by an area in their westerly portion of the block bounded by W. 113 St., S Ave., W. 114 St., Lenox Ave. Plans deposit $25 general const., $25 elevators. Extended date. CD 5/14.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Bd. Educ., Union Free School Dist. 4**, Port Washington High School Bldg., Port Washington, N. Y., Separate Contracts $1,989,000. Senior HIGH SCHOOL, PORT WASHINGTON, N. Y. Bids Apr. 17. CD 4/10.

▲ **Austin Co.**, 19 Rector St., New York 6, N. Y., CA approx. $4,082,000 design and construct PARTS DEPOT, TETERBORO, N. J. Ford Motor Co., 3000 Schaefer Rd., Dearborn, Mich.

▲ **O. H. Martin Co.**, 18 1st St., Sharpsburg, Pa., CA, Approx. $5,266,000. ROLLING MILL, hot strip mill, BRACKENRIDGE, PA. Allegheny Ludlum Steel Corp., Oliver Bldg., Pittsburgh, Pa. CD 1/18/51.

▲ **John McShain**, 17 and Spring Garden Sts., Phila. 30, Pa., LB $6,997,200, general constr.;
Willard Sales & Service Co., 2901 N. Broad St., Phila. 32, Pa., LB $959,860, heating;
Daniel J. Keating, 3917-27 Baring St., Phila. 4, Pa. LB $1,159,159, plumbing;
Ace Electric Service Co., 129 N. 3 St., Phila. 6, Pa. LB $928,695, electrical work;
Otis Elevator Co., 502 N. 19 St., Phila. 30, Pa., LB $315,230, elevators for main HOSPITAL bldg. and utility tunnel; DOCTORS' and NURSES' QUARTERS with connecting corridors to main hospital for Eastern Pennsylvania Psychiatric Institute, PHILA., PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids May 21. CD 5/9.

▲ **Anderson-Fischer Assoc.**, 493 Hempstead Turnpike, Elmont, N. Y., CA, **$1,045,000**. HOUSING Proj. NY 18-1, 31 two-story bldgs. for 150 families, Sharon Ave. Site, PLATTSBURGH, N. Y. Plattsburgh Housing Auth., 27 Broad St., Plattsburgh, N. Y. Bids Apr. 18. CD 4/23.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

Ala., Montgomery—PAINT BLDG., etc.—B.A. 6/16—Alabama National Guard Bureau State Capitol, Montgomery, paint, oil and dope bldg., crash truck bldg. warehouse, motor service shop and hangar at Dannelly Field. CD 5/20.

Fla., Key West—ELECTRIC TRANSMISSION LINES—B.A. 6/17—City, 30 mi. 13.8 kv. electric transmission lines. Plans deposit $25. R. W. Beck & Assocs., Colorado Springs, Colo., engrs. Extended date.

† **Fla., Panama City**—B.A. 6/19—Dpt. Navy, Officer in Charge of Construction, Box 365, Naval Base, S. C., paved road and parking area at U. S. Navy Mine Countermeasures Station, NOY 74172. Plans deposit $10.

† **Louisiana**—B.A. 6/19—U. S. Eng., foot of Prytania St., New Orleans, Zone 9, pumping station on west bank of Mississippi River, Orleans Parish, Inv. 52-233. CD 6/26/46.

† **Va., Fort Belvoir**—HUMP TEST SIDING—B.A. 6/19—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C. hump test siding, ERDL area, ENG 49-080-52-98 (73). Plans deposit $10. Bids Apr. 10 rejected. CD 3/14.

Ga., Albany—B.A. 6/20—City, City Hall, 72,658 lin. ft. 8- to 54-in. sanitary sewer lines. Plans deposit $20.

† **Miss., Gulfport**—B.A. 6/24—Dpt. Navy, Officer in Charge of Constr., Box 365, Naval Base, Charleston, S. C., pavement of open storage area at Naval Advanced Base Supply Depot, NOY 72884. Plans deposit $10.

La., New Roads—NATURAL GAS SYSTEM—B.A. 7/7—Pointe Coupee Parish Police Jury, New Roads, natural gas sys. in Wards 5, 6, 7, 8 and 9. Plans deposit $10. Porter, Barry & Assoc., 1730 Main St., Baton Rouge, engrs. CD 5/21.

BIDS ASKED—BUILDINGS

Fla., Chattahoochee—WARDS—B.A. 6/12—Florida State Improvement Comn., 301 Caldwell Bldg., Tallahassee Negro Male & Female Wards at State Hospital. Extended date. CD 5/9.

▲ **N. C., Swannoa**—PLANT—B.A. 6/16—Oerlikon Tools & Arms Corp., c/o Six Associates, Inc., archt., 1025 Hendersonville Rd., Asheville, Phase 2, munitions mfg. plant, incl. 5 bldgs. $3,000,000. CD 11/29.

Ga., Savannah—SCHOOL—B.A. After 6/16—City, George De Renne School, $365,000. Oscar M. Hansen, 15 W. Liberty St., archt. CD 1/28.

▲ **Miss., Greenville**—PLANT—B.A. 6/17—City, general contract for Greenville Mills, Inc., plant, $1,000,000. Extended date. Mallett & Assoc., 416½ E. Amite St., Jackson, archts. CD 5/5.

† **N. C., Durham** — BUILDING ALTERATIONS — B.A. 6/18—Dpt. Navy, Officer in Charge of Construction, Box 365, Naval Base, Charleston, S. C., building alterations at Naval Reserve Training Center, NOY 72898. Plans deposit $10.

† **N. C., Greensboro** — BUILDING — B.A. 6/18 — Dpt. Navy, Officer in Charge of Construction, Box 365, Naval Base, Charleston, S. C., second floor addn. at Naval Reserve Training Station, NOY 71536. Plans deposit $10.

† **Tenn., Chattanooga**—ARMORY—B.A. On Or About 6/19—U. S. Eng., 303 Federal Office Bldg., Nashville, Zone 1, 28,000 sq. ft., brick O. R. C. armory, Serial No. ENG 40-058-52-31. Plans deposit $25. CD 3/28.

Ga., Milledgeville—TWIN BLDG.—B.A. 6/20—Georgia State Dpt. Welfare, State Office Bldg., Atlanta, remodel twin bldg. at State Hospital.

† **N. C., Camp Lejeune**—STORAGE—B.A. 6/20—P. Wks. Office, Bldg. 1005, Marine Barracks, storage bldg. (Butler type), Onslow Beach area, NOY 74168, Spec. 34135. Plans deposit $10.

▲ **Tenn., Manchester**—HOSPITAL—B.A. 6/29—Coffee Co., Manchester, hospital, $1,000,000. Extended date. Bianculli, Palm & Purnell, 501 Cherry St., Chattanooga, archts. CD 5/22.

▲ **Ga., Augusta**—HOSPITAL—B.A. After 7/1—State Bd. Health, State Office Bldg., Atlanta, State Hospital, $13,500,000. Gregons & Ellis, Mortgage Guarantee Bldg., Atlanta, archts. CD 12/17.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Virginia Engineering Co.**, Melson Bldg., Newport News, Va., CA $2,869,940, new HOUSING in Shellbank area, Inv. 52-31. LANGLEY AIR FORCE BASE, VA. U. S. Eng., foot of Front St., Norfolk, Va. Bids Apr. 30. CD 5/22, under LB.

▲† **Conn-Structors, Inc.** 209-212 Whitehead Bldg., Atlanta, Ga., CA. $1,724,721, barracks, at Charleston Air Base. Eng 38-081-52-18. CHARLESTON, S. C. U. S. Eng., Custom House, Charleston, S. C. Bids May 2. CD 5/7, under LB.

Morrison & Conklin Constr. Co., 4005 Crittenden Dr., Louisville, Ky. CA $169,000. Contr. 150 Sect. I Bear Grass Interceptor Exten. Sewer, LOUISVILLE, KY., City, Metropolitan Sewer Dist., W. Jefferson St., Louisville, Ky. Bids May 20, awarded May 21. CD 5/16.

▲ **The James McHugh Constr. Co.**, 6449 S. South Park St., Chicago, Ill. LB $4,556,716, est. $6,000,000. completing sanitary district construct collectors, lift stations, treatment plant, NEWPORT, KY. Sanitation Dist. 1, Campbell and Kenton Counties, 37 E. 4 St., Newport, Ky. Bids May 20. CD 5/5.

BUILDINGS

LOW BIDS AND CONTRACTS

Jenkins Home Constructors, Inc., Hy. 614, Charleston, S. C., CA $800,000. 90 RESIDENCES, CHARLESTON, S. C. Homeland Developers, c/o contractor.

Jack Culpepper, 114 E. 5 Ave., Tallahassee, Fla., LB, $108,000, FACTORY addn. at Georgia School for Blind, BAINBRIDGE, GA. Georgia State Dpt. Welfare, State Office Bldg., Atlanta, Ga. Bids May 21. CD 4/23.

▲ **Blount Bros. Constr. Co.**, P.O. Box 1144, Montgomery, Ala., LB, $2,499,000, RADAR and ELECTRONICS bldg. and flight operations hangar, MARIETTA, GA. Lockheed Aircraft Corp., Marietta, Ga. Bids May 19. CD 5/6.

▲ **D. L. Phillips**, 308 W. Palmer St., Charlotte, N. C., CA, $4,465,500, construct, manage and finance 500 HOUSING units for personnel of Hunter Air Force Base, SAVANNAH, GA. U. S. Eng., Post Office Bldg., Atlanta, Ga. Bids Apr. 23, awarded May 23. CD 4/30, under LB.

Dethlefs & Hannon, Anniston, Ala., LB, $358,336, HOSPITAL addns., alterations, ANNISTON, ALA. Anniston Memorial Hospital, Anniston, Ala. Bids May 20. CD 5/20.

▲† **Jordan Contg. Co.**, Andrews Rd., and McMath Constr. Co., Brennan Rd., both Columbus, Ga., LB, $1,512,705, ammunitions storage MAGAZINES, FORT McCLELLAN, ALA. U. S. Eng., P.O. Box 1169, Mobile, 7, Ala.

▲ **Farnsworth & Chambers Co.**, Box 74, Houston, Tex. CA, $3,812,500. 5 story, rein.-con., masonry HOSPITAL, NEW ORLEANS, LA. The Alton Ochsner Medical Foundation, 607 Gravier St., New Orleans, La. Bids Apr. 30, awarded May 21. CD 5/6, under LB.

▲ **R. P. Farnsworth & Co., Inc.**, 1515 S. Salcedo St., New Orleans, La. LB $1,188,000. CHURCH, NEW ORLEANS, LA. First Baptist Church, 3436 St. Charles Ave., New Orleans, La. Bids May 19. CD 5/9.

Schickli Contg. Co., 915 E. Jefferson St., Louisville, Ky. CA $883,600. HOSPITAL, ELIZABETHTOWN, KY. Hardin Co., Fiscal Court, Elizabethtown, Ky. CD 5/22, under LB.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

Mich., Harbor Beach—B.A. 6/23—City, Harold Bunting, clk., Maple Grove sewers extensions, South Ravine sewer constr., North Ravine sewers, $60,000. Plans deposit $10 refundable, Hubbell Roth & Clark, Inc., 264 Buhl Bldg., Detroit, engr.

BIDS ASKED—BUILDINGS

Mich., Hillsdale—SCHOOL—B.A. 6/18—Bd. Educ., Jane R. Mattson, secy., 2 story, bsmnt., brick, steel school, $340,000. Plans deposit $25, Warren S. Holmes Co., 2200 Olds Tower, Lansing, archt.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

V. N. Holderman & Sons, Inc., 890 Oakland Park, Columbus, O., CA, $338,145, 9,000 ft. concrete and asphaltic concrete taxiway, Port Columbus (Municipal Airport), COLUMBUS, O. City, City Hall, Columbus, O. Awarded May 19. CD 2/21/51.

† **Joseph L. Pohl**, Nevada, Mo., LB, $362,936, est. $247,905, 23,600 lin. ft. earthen levees with road surf., two gravity drainage structures and extend one drainage structure, East Cape Girardeau and Clear Creek Drainage Dist., Proj. Item I-B, Alexander Co., Civeng 23-065-52-88, ILLINOIS, U. S. Eng., 834 U. S. Court House & Custom House, 1114 Market St., St. Louis, 1, Mo. Bids May 20. CD 4/30.

Thomas Mc Queen Co., 1313 Circle St., Forest Park, Ill., LB, $226,655, 3 bridges over Congress Expressway over Addison Creek, Bellwood, CHICAGO, ILL. Cook Co., County Bldg., Chicago, Ill. CD 11/3/49.

W. J. Sheppard & Co., 1412 Altgeld St., Chicago, 14, Ill., CA, $208,000, North West Expressway Drainage from Orleans St. to Michigan Ave. on Ontario St., CHICAGO, ILL. Cook Co., County Bldg., Chicago, 2, Ill. Bids May 13, awarded May 15. CD 5/7.

City, Otto E. Eckert, Bd. Water & Electric Light Comn., City Hall, Lansing, Mich. Own Forces. $162,000. constr. underground ducts for power line to new state office bldg. from Ottawa St. power plant, incl. cable, switch gear and installations, LANSING, MICH. CD 11/12/51, under Public Bldgs.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Tex., San Antonio**—B.A. 6/13—U. S. Govt., c/o Purch. Contg. Officer, Bldg. 17, Fort Sam Houston, rehabilitation water reservoir at Camp Stanley. Inv. No. E-41-133-52-112. $50,000.

Mo., St. Louis—DOCK—B.A. 6/17—City, Frank J. McDevitt, prws. Bd. P. Service, 304 City Hall, 12 and Market Sts., Zone 3, imprv. municipal dock on Mississippi River at foot of N. Market St. incl. trucking facilities, furnishing, erecting pre-fabricated warehouse, $83,000. CD 2/8.

† **Tex., Mineral Wells**—SHOPS, etc.—B.A. 6/17—U. S. Eng., 100 W. Vickery St., Fort Worth. (A) battalion auxiliary shops, Approx. $100,000. (B) 5 battalion vehicle paint shops, Approx. $100,000. (C) four P.O.L. issue bldgs., Approx. $90,000. (D) five battalion specialist training shops, Approx. $100,000. (E) 3 battalion heavy equipment shops, Type 1, Approx. $100,000. (F) 2 Type-2 battalion heavy equip. shops, Approx. $100,000. (G) auxiliary automotive shops, $86,000. (H) 3 battalion vehicle dispatch offices, Inv. No. Eng. 41-443-52-48 at Camp Wolters Air Force Base. CD 7/16.

† **Tex., Waco**—APPROACH SYSTEM—B.A. 6/17—U. S. Eng. 100 W. Vickery St., Fort Worth, ground control approach sys. for Connally Air Force Base, Inv. No. Eng. 41-443-52-50. Approx. $100,000. CD 8/6/51.

† **Minnesota**—B.A. 6/18—U. S. Eng., 1217 U.S.P.O. & Custom House, St. Paul, Zone 1, Aitkin Flood Diversion Channel Mississippi River, 2.7 mi. Reach A, Sta. 0 plus 00 to 144 plus 50, 3 mi. Reach B, Sta. 144 plus 50 to 303 plus 75, 5.7 mi. Reach A and B combined Sta. 0 plus 00 to 303 plus 75, eastwest direction about 4 mi. north of Aitkin, CIVENG 21-018-52-40. CD 4/16.

† **Minnesota**—B.A. About 6/19—U. S. Eng., 1217 U.S.P.O. & Custom House, St. Paul, Zone 1, repair Watson Sag Dike LacQui Parle Flood Control Proj. left side of Chippewa River Diversion Channel lying about 2½ mi. northwest of Watson, and about 9 mi. northwest of Montevideo, CIVENG 21-018-52-42. CD 6/9/44.

† **NORTH DAKOTA**—B.A. On Or About 6/26—U. S. Eng., Fort Lincoln, P.O. Box 300, Bismarck, construct approx. 14 mi. highway on Fort Berthold Indian Reservation, from 20 mi. west of Garrison and extending west to North Dakota State Hy. No. 8, south of Parshall, Serial No. CIVENG 32-015-52-58. Plans deposit $10.

† **Wyoming**—B.A. 6/26—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo. furnishing, del. f.o.b. cars shipping point or f.o.b. cars Casper, bulkhead gates, not incl. rubber seals, one bulkhead gate lifting beam; 4 draft-tube filling valves installation on 2 gates for Alcova Power Plant, Kendrick Proj. Spec. DS 3726. L. N. McClellan, ch. engr. CD 9/12/44.

† **Mont., Great Falls**—DORMITORIES, etc.—B.A. 7/1—U. S. Eng., City-County Airport, Walla Walla, Wash., 5 dormitories, mess and admin. bldg., utilities, Great Falls Air Force Base, Inv. 52-35. CD 11/5/51.

BIDS ASKED—BUILDINGS

† **N. M., Albuquerque**—MEDICAL and PERSONNEL—B.A. 6/19—U. S. Atomic Energy Comn., P.O. Box 5900, Albuquerque, about approx. 6,000 sq. ft. concrete, masonry medical and personnel bldg. $115,000-$125,000. CD 3/26.

SOON LETS CONTRACT—BUILDINGS

Mo., Liguori—POSTAL and OFFICE—Redemptorist Monastery, Very Rev. Donald F. Miller, Liguori, soon lets contract 1 story, bsmnt., 65x136 ft., brick, concrete postal and office. Joseph D. Murphy & Eugene J. Mackey, 4746 McPherson Ave., St. Louis 8, archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

J & J Constr. Co., First National Bank Bldg., Oklahoma City 2, Okla. CA, $373,959. 46.6 mi. 69 KV electric transmission line 69 KV line, Osage, Cole and Miller Counties, Contr. V Proj. Mo. 71 A, Manitead, MISSOURI. Central Electric Power Co-operative 4000 E. High St., Jefferson City, Mo. Bids May 5. CD 4/30.

Metcalf Engineering & Constr. Co., 105 S. LaSalle St., Chicago, Ill. CA, $125,000. 18x18 ft. steel marine tower, 110 ft. high, pile fdn., for unloading grain from barges, 11 E. Grand Ave., ST. LOUIS, MO. Norris Grain Co., Merchants Exchange Bldg., St. Louis 2, Mo.

▲ **TEXAS**—State Hy. Dpt., State Highway Bldg., Austin,

Brown & Root, Inc., Box 3, Houston, Tex., LB $94,078, est. $75,000. flexible base, one course surf. tr. 2.159 mi. Hy. SH 60, S 1042 (4) and (3). Austin and Wharton Counties; LB $95,889, est. $75,000, grading, structures, base and surf. 9.115 mi. Hy. FM 1696, Proj. S 1727 (1), Grimes Co.;

H. L. Butler & Son and W. Paul Carlisle, Box 7112, Dallas, Tex., LB $97,521, est. $75,000, grading, structure base and surf. 4.007 mi. Hy. FM 862, Proj. R 1705-1-1, Red River Co.;

Campbell & Kay, Tyler, Tex. and **Gaylord Constr. Co.**, 806 Blodgett St., Houston, Tex., LB $241,542, est. $180,000. flexible base, asphalt pavement 12.246 mi. Hy. SH 155, Proj. F 646 (8) and (9), Smith and Upshur Counties;

D and H Constr. Co., Box 7053, Dallas, Tex., LB $158,839, est. $150,000. seal coat 156.511 mi. Hy. U.S. 287, 87, 66 and 60, Proj. C 42-2-9, etc., Carson, Armstrong, Donley, Randall, Deaf Smith, Oldham, Potter and Gray Counties;

Dew Constr. Co., Inc., Box 641, Tyler, Tex., LB $74,129, est. $75,000, base, surf. 8.112 mi. Hy. FM 662, Proj. C 1050-1-2, Ellis Co.;

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Foley & Williams, Tyler, Tex., LB $97,581, est. $75,000. grading, structures, base, surf. 7.492 mi. Hy. FM 242 and 276, Proj. S 1651 (1), Sabine Co.;

Ernest Loyd, Box 1120, Fort Worth, Tex., LB $517,482, est. $300,000. flexible base, curb and gutter and P. & S. F. Rd. underpass on Hy. U.S. 62 and Loop 230, F. 433 (18), Lubbock Co.;

F. M. Reeves & Son of Austin, Inc., P.O. Box 972, Austin, Tex., LB $1,508,304, est. $1,350,000. grading, drainage structures and pavement 0.559 mi. Hy. U.S. 81, Proj. UI 1083 (13), Bexar Co.;

M. E. Ruby, San Marcos, Tex., and **H & H Constr. Co.**, Corsicana, Tex., LB $130,358, est. $100,000. grading, structures, base and surf. 7.457 mi. Hy. FM 591, Proj. S 1828 (1), Comanche Co.;

South Texas Constr. Co., Box 3536, Corpus Christi, Tex., LB $204,702, est. $200,000. wid'n., grading, structures, and surf. 7.543 mi. Hy. U.S. 77, Proj. C 327-6-7, Willacy Co.—LB $141,616, grading, structures, base, surf. 9.681 mi. Hy. FM 1163 and 653, Proj. S 1684 (1), Wharton Co.;

C. Hunter Strain, Box 1057, San Angelo, Tex., LB $103,598, est. $75,000. b. conc. 5.511 mi. Hy. U.S. 80, Proj. F 444 (26) and (24), Nolan and Taylor Counties;

Strain & Brown, P.O. Box 1057, San Angelo, Tex., LB $125,390, est. $100,000. grading, structures, base, surf. 10.013 mi. Hy. FM 1609, Proj. V 1530-1-1, Scurry Co.; LB $233,417, est. $200,000, flexible base, two course surf. tr. 16.477 mi. Hy. SH 51, Proj. S 1514 (2), Andrews Co.;

Texas Bithulithic Co., P.O. Box 5297, Dallas 2, Tex., LB $65,222, grading, drainage, surf. 0.227 mi. Hy. U.S. 75, Proj. C 57-7-32, Dallas Co.;

Trotti & Thomson, Inc., P.O. Box 70, Beaumont, Tex., LB $125,521, est. $75,000, flexible base, 2 course surf. tr. and hot mix b. conc. pavement 0.545 mi. Hy. U.S. 90, C 28-9-23, Orange Co.;

Dean Word, New Braunfels, Tex., LB $137,582, est. $170,000, grading, structures, fdn. course 5.632 mi. Hy. U.S. 81, Proj. FI 66 (10), Comal Co. Bids May 20. CD 4/29, 5/6.

TEXAS—State Hy. Dpt., State Highway Bldg., Austin.

Brown & Root, Inc., Box 3, Houston, Tex., LB $198,602, est. $180,000. Spur 201 overpass and Goose Creek Bridge on State Hy. 146, Harris Co.;

Russell Smith, 1817 Marydale St., Dallas, Tex., LB, $160,898, est. $100,000, 3 trestle bridges and culverts, State Hy. 34, Proj. 174-1-18, Hunt Co. Bids May 20. CD 5/6.

John A. Petty, 603½ N. 6 St., Longview, Tex., LB, $296,131, est. $125,000, incl. all pipe for sanitary sewerage sys.;

A. D. Muckelroy, Box 825, Nacogdoches, Tex., LB, $126,607, est. $90,000. sewage treatment plant and 2 pump stations, GREGGTON, TEX. Gregg County Water Control & Imprvt. Dist. 1, Greggton, Tex. Bids May 15. CD 4/30.

Southwestern Bell Telephone Co., Auditorium Circle, San Antonio, Tex. Force Account. $150,000. constr. unit of underground cable, SAN ANTONIO, TEX. CD 4/20/45.

BUILDINGS

LOW BIDS AND CONTRACTS

Comey Processing Co., 7370 Manchester Rd., Maplewood 17, Mo. Owner Builds. 1 story, 35x88 ft., brick, concrete FACTORY, 550 ft. west of Walnut Pond, MAPLEWOOD (ST. LOUIS 17, P.O.), MO.

Jacob Rubin & Sons, 616 Buder Bldg., 707 Market St., St. Louis 1, Mo. CA, 1 story, 80x120 ft. automobile repair and service GARAGE, 1512 N. 7 St., ST. LOUIS, MO. Western Garage Co., 1507 N. 7 St., St. Louis 6, Mo. S. L. Rubin, 616 Buder Bldg., 707 Market St., St. Louis 1, Mo., archt. C. A. Davis, 6625 Delmar Blvd., University City, 5 Mo., engr.

C. Rallo Contg. Co., Inc., 5000 Kemper Ave., St. Louis 9, Mo. CA, $130,000. 1 story, 88x254 ft., brick FACTORY, 4970 Kemper Ave., ST. LOUIS, MO. Kemper Avenue Building Corp., 5000 Kemper Ave., St. Louis 9, Mo. Preston J. Bradshaw & Assoc., 1800 Olive St., St. Louis 3, Mo., archts.

Geo. L. Cousins Contg. Co., 875 N. Skinker Blvd., St. Louis 5, Mo. CA, 1 story, 111x201 ft., brick, concrete WAREHOUSE addn. Bldg. No. 2, 4545 Oleatha Ave., ST. LOUIS, MO. Merck & Co., Inc., Rahway, N. J. Bids Apr. 28. CD 4/30.

Be-Mac Transport Co., Inc., 1316 N. 14 St., St. Louis 8, Mo. rejected bids Apr. 7. truck terminal, incl. 87x360 ft. dock, 60x293 ft. garage, 32x33 ft. service station, 1 story, bsmnt., 42x160 ft. brick, steel, concrete office, tract fronting 764 ft. east line Broadway vicinity of Calvary Ave., ST. LOUIS, MO. Will re-advertise. CD 3/29.

C. Rallo Contg. Co., Inc., 5000 Kemper Ave., St. Louis 9, Mo. CA, $100,000. 1 story, 141x161 ft., brick, concrete WAREHOUSE and OFFICE, 3150 Bronson Ave., ST. LOUIS, MO. Carl Sciuto, 5901 Highfield Rd., St. Louis 23, Mo. Gates Rubber Co., 4215 Clayton Ave., St. Louis 10, Mo., lessee. Preston J. Bradshaw & Assoc., 1800 Olive St., St. Louis 3, Mo., archts. Neal J. Campbell, 911 Locust St., St. Louis 1, Mo., engr.

Murch-Jarvis Co., Inc., 718 Locust St., St. Louis 1, Mo. CA, 1 story, 100x100 ft., brick, concrete, FACTORY and OFFICE, 4160 Meramec St., ST. LOUIS, MO. Geotum Properties, Inc., 718 Locust St., St. Louis 1, Mo. Davies Supply & Mfg. Co., 2315 Delmar Blvd., St. Louis 3, Mo., lessee. H. T. Jarvis, 15 Holly Dr., Webster Groves 19, Mo., engr.

West Texas Utilities Co., Abilene, Tex., Purchase and Hire. $200,000. some electric POWER PLANT imprvs., remodeling, ABILENE, TEX. CD 9/25.

F. S. Olds Co., 157½ Cypress St., Abilene, Tex., CA, Approx. $300,000. 2 story brick, rein.-con. frame and fdn. girls DORMITORY, ABILENE, TEX. Hardin-Simmons University, Abilene, Tex. CD 6/8/50.

▲ **Robert E. McKee**, Box 2848, Dallas Tex., LB, $8,708,109. HOSPITAL and CLINIC, DALLAS, TEX. Dallas Co. Court House, City, City Hall, Main and Harwood Sts., Dallas, Tex. Bids Apr. 3 rejected. CD 4/9, under LB.

Malcolm McCullough & Assoc., 2111 Jensen Dr., Houston, Tex. Own Forces. $428,500, 18 DWELLINGS in Sect. 1, HOUSTON, TEX.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Wash., Tacoma**—PIERS—B.A. 6/12—Pub. Wks. Officer Thirteenth Naval District, 1611 W. Wheeler St., Seattle, rebuilding Piers 1, 2 and 3. Plans deposit $40.

† **Washington**—CABLE REPLACEMENT—B.A. 6/18—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, cable replacement on cableway Mud Mountain Dam on White River, Enumclaw. CIVENG 45-108-52-54.

† **Wash., Spokane**—DORMITORY, etc.—B.A. 6/26—U. S. Eng., City-County Airport, Walla Walla, 6 dormitory bldgs. and 2 mess-administration bldgs. at Fairchild Air Force Base, Inv. 52-34. CD 9/18.

† **Wash., Spokane**—HANGAR, etc.—B.A. 7/2—U. S. Eng., City-County Airport, Walla Walla, rein.-con. wing hangar, maintenance docks, at Fairchild Air Force Base, Inv. 52-36. CD 9/18.

BIDS ASKED—BUILDINGS

Calif., Los Angeles—EXPOSITION—B.A. 6/17—State Div. Architecture, P. Wks. Bldg., Sacramento. alterations, additions to State Exposition Bldg. Unit IV, 6th Dist. Agricultural Assn. Plans deposit $50. CD 9/13/49.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **UTAH**—Bureau P. Rds., Dpt. Commerce, Federal Bldg., Ogden.

Reynolds Constr. Co., Springville, Utah, CA. $127,765. construct 14.054 mi. bit. roadway on Enterprise S.-George Forest Hy. in Dixie National Forest, Washington Co. Bids May 7. B. W. Matteson, c/o owner, div. engr.

▲ **CALIFORNIA**—State Div. Hys., Sacramento, Calif.

Ukropina, Polich & Kral, Box 425, Baldwin Park, Calif., CA, $1,003,903, superstructure for bridge across American River near Elvas, 1 mi. N.E. of Sacramento, Sacramento Co. Bids May 7, awarded May 19. CD 5/14, under LB.

Nomellini Constr. Co., P.O. Box 1177, Stockton, Calif., CA, $502,050, grading, draining, paving, Tuxedo and Country Club Improvement Dist., Proj. 52-1, STOCKTON, CALIF. San Joaquin Co., Court House, Stockton, Calif. Bids May 19.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Chicago Bridge & Iron Co.**, 550 W. 17 St. South, Salt Lake City, Utah, CA. Total est. $1,000,000. 500,000 bbl. STORAGE TANK for oil terminal in North Salt Lake Pioneer Pipe Line, SALT LAKE CITY, UTAH. Sinclair Pipe Line Co. & Continental Pipe Line Co., c/o Sinclair Oil Co., Dooly Bldg., Salt Lake City, Utah.

Graham & Jensen, P.O. Box 1208 Merced, Calif., CA $758,864, Thos. Jefferson Junior High SCHOOL, MADERA, CALIF. Madera Elementary School Dist., 725 E. Sixth St., Madera, Calif. Bids May 5, awarded May 20. CD 5/13.

▲ † **Stolte, Inc.**, 8451 San Leandro St., Oakland, Calif. CA, $1,227,200, three 225-man BARRACKS, etc., at Oakland Army Base, Inv. 04-203-52-36. OAKLAND, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids May 13, awarded May 19. CD 5/22, under LB.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Ont., Centralia—STEAM DISTRIBUTION SYSTEM—B.A. 6/10—R. P. Opie, engr. Defence Constr. Ltd., 441 Queens Quay, W. Toronto, 2B, Ont. partial supply and installation of an underground steam distr. sys. at R.C.A.F. Station Job 1998. $150,000. Plans deposit $100. CD 4/7.

▲ **Ont., Camp Borden**—HANGARS—B.A. 6/12—Defence Constr. Ltd., 441 Queen's Quay W., Toronto. two 160 ft. steel hangars at air base. $1,500,000. Plans deposit $100. R. P. Opie, c/o owner, regional engr.

BIDS ASKED—BUILDINGS

Que., Montreal—SCHOOL—B.A. 6/9—T. Sommerville, secy. Protestant School Comm. Board, 3460 McTavish St., Logan Elementary School, Darlington and Soissans Aves. $500,000. Luke & Little, 815 Crescent St., archts. CD 12/18.

SOON LETS CONTRACT—BUILDINGS

Ont., Downsview—PLANT HANGAR—De Haviland Aircraft of Canada Ltd., Sheppard Ave. W., Toronto, soon lets contract test flight hangar at aircraft plant. David Shepherd & R. W. Powell, 57 Bloor St. W., Toronto, engrs.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

ALBERTA—Dpt. Hys., Parliament Bldg., Edmonton.

Blyth Constr. Co., 7 St. Andress Garden, Toronto, Ont. CA, $473,662. 1,000 ft. rein.-con. girder bridge over South Saskatchewan River, Medicine Hat. Awarded May 19. CD 3/21/51.

BRITISH COLUMBIA—Province of B. C., Douglas Bldg., Victoria,
General Construction Co. Ltd., Granville Island, Vancouver, B. C., LB, $174,345, bit. Section 10 Peace River Electoral Dist. Bids May 16. CD 5/12.

BRITISH COLUMBIA—Province of B. C., Douglas Bldg., Victoria,
W. C. Arnett & Co. Ltd., Prince George, B. C., LB $459,936, reconstruct 10.19 mi. Wabi Hill Section of Peace River Hy. from Mile 190 to Mile 200.19. Bids May 13. CD 4/21.

BRITISH COLUMBIA—Province of B. C., Douglas Bldg., Victoria,
W. C. Arnett & Co. Ltd., Prince George, B. C., LB $495,366, reconstruct Cariboo Highway Mile 126 to Mile 134. Bids May 19.

▲ **QUEBEC**—Dpt. P. Wks., Quebec City. (Prov. Govt.), **Dufresne Engineering Co. Ltd.**, 1832 Boulevard Pie IX, Montreal, Que., CA. reconstruction of bridge;
Dominion Bridge Co. Ltd., Lachine, Que., CA, structural steel fabrication and erection, for bridge over St. Maurice Bridge between Three Rivers and Cap de la Madeleine. Total cost Approx. $4,000,000. O. Desjardins, c/o owner, engr.

BUILDINGS

LOW BIDS AND CONTRACTS

Henri Dubz, Grand Falls, N. B., CA, $600,000, 4 story, 72x260 ft., rein.-con., brick vocational SCHOOL, EDMUNSTON, N. B. Commission Scolaire Catholique Dist. 1, R. Bourgoin, secy.-treas. Edmunston, N. B. Awarded May 16. CD 3/21.

The Foundation Co. of Canada, 428 Richmond St., London, Ont. CA, 1 story, 90x220 ft., brick, steel, concrete blocks FACTORY, and 20x30 ft., rein.-con. boiler house, LONDON, ONT. Plumb Tool Co., Box 3519 Terminal Annex, Los Angeles, 54, Calif., U. S. A. Bids May 19. Awarded May 22. CD 5/20.

▲ **Ontario Construction Co. Ltd.**, Box 36, St. Catherines, Ont. CA, $1,250,000, 80x300 ft., brick, steel FACTORY addn., ST. CATHERINES, ONT. English Electric Co. of Canada Ltd., George St., St. Catherines, Ont. Allward & Guinlock, 57 Bloor St. W., Toronto, Ont., archts. Awarded May 19.

Proposed Projects

WATER SUPPLY

Calif., La Habra—City, City Hall, $750,000 bond election June 24, new 20-in. feeder line, reservoir and expansion, Moffatt & Nichol, Inc., 122 S. 5 St., Long Beach, consult. engr. Harry C. Billings, c/o owner, engr.

Miss., Waveland—Town, WW sys. $250,000.

N. J., Burlington—Bd. Water Comrs., City Hall, exten. water mains in 11 streets of new development, $200,000. Samuel Probasco, City Hall, city engr.

N. C., Oxford—Town, Hugh Currin, mayor, Oxford, bond election June 17, municipal lake as a water reservoir. $175,000. L. E. Wooten & Co., 306 S. Dawson St., Raleigh, consult. engrs. CD 4/18.

O., Campbell—City, Michael J. Kovach, mayor, City Hall, bond election Nov. 4, water filtration plant. $670,000.

▲ **O., Newark**—City, City Hall, expansion 9 m.g. WW plant and pumping station to 15 m.g. capacity, enclosure of present open reservoir, distr. lines addn. $2,000,000. Uhlmann & Assoc., 1441 N. High St., Columbus, consult. engrs. CD 8/11/44.

O., Zanesville—City, City Hall, drill 4 wells. $240,000. CD 1/17/45.

▲ **Tex., Corpus Christi**—Lower Nueces River Water Supply Dist., 1206 S. Staples St., water plants, $675,000; test wells, pump unit, concrete distr. lines, $530,000. Ambursen Engineering Co., M & M Bldg., Houston, consult. engr. CD 10/25/50.

Tex., Lubbock—City, WW, $100,000, C. A. Tubbs, Lubbock, consult. engr. CD 5/15.

Wash., Walla Walla—City, City Hall, replacement oil intake pipe line, $95,000, drilling 2 wells, $135,000, installing mains, $40,000.

Alaska, Fairbanks—City, City Hall, voted bonds, water treatment plant. $250,000. CD 7/30/45.

SEWERS, WASTE DISPOSAL

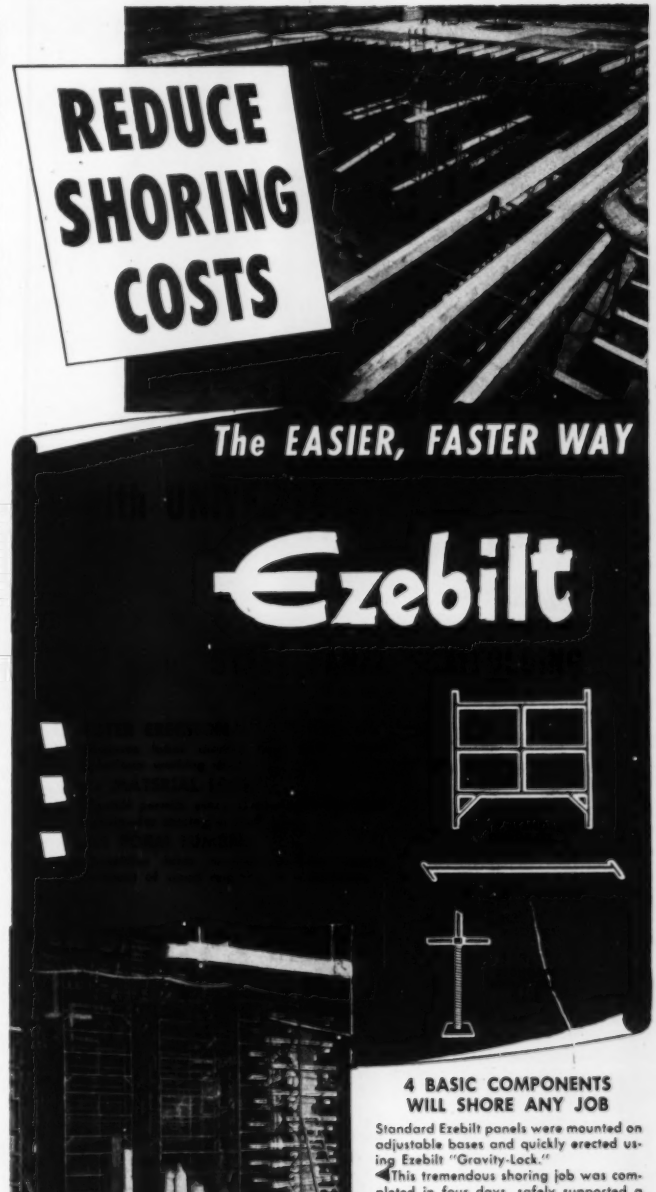
Calif., Bakersfield—Ridgecrest Sanitation Dist., Court House, sewerage system with collection, outfall and treatment plant .$400,000. R. E. White, 1716 Oak St., consult. engr.

Colo., Denver—Alameda Water & Sanitation Dist., Denver, Sewer District in Jefferson County bounded by Sheridan Blvd. and Quay St. on east and west by W. 6 and Alameda Aves. on north and south, near here. $150,000. P. H. Norris, 10200 W. 20 Ave., Lakewood, Colo., consult. engr.

Conn., Hartford—Metropolitan Dist., 115 Broad St., sewer extension from Willys St. south through private lands and United Aircraft property, East Hartford. $750,000.

Ga., Sylvester—City, sanitary sewer imprvs. $150,000. Merritt & Welker, 208 Roswell St., Marietta, consult. engrs.

Ill., Mahomet—Village, sanitary sewerage sys., $250,000. Wilson & Anderson, 6½ Taylor St., Champaign, consult. engrs.



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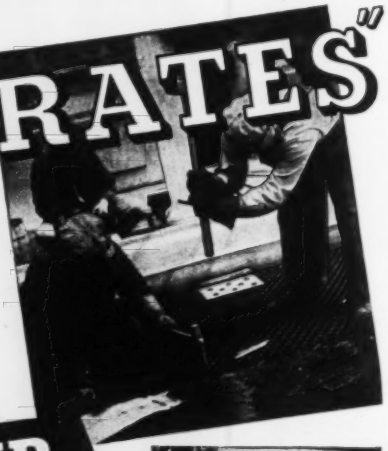

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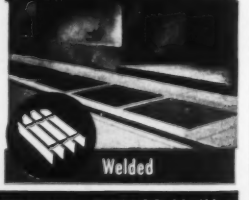

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▲ Mass., Somerset—Town, Bd. Selectmen, Wood St., sewage disposal sys. $2,396,000, Tighe & Bond, 189 High St., Holyoke, consult. engrs.

Mo., Moberly—City, H. P. Phelan, mgr., renovation, imprvs. to sewage disposal plants, etc. $200,000. Kenneth H. Larkin & Assoc., Wirthman Bldg., Kansas City, Mo., consult. engrs. CD 8/22/46.

Neb., Columbus—City, storm sewers. $380,000.

N. Y., Freeport—Village, Village Hall, sewage treatment plant alterations, addns. $800,000. CD 12/10/45.

▲ O., Akron—City, City Hall, defeated May 6, sewer levy, trunk line sewers throughout the city. $5,000,000. CD 3/17.

O., Campbell—City, Michael J. Kovach, mayor City Hall, bond election Nov. 4, sewage disposal plant. $800,000. CD 1/14/47.

▲ O., Cincinnati—City, City Hall, Millcreek Sewage plant and outfall, interceptor sewers, between Ohio River and plant site, north of Gest St. on Mill Creek; outfall to be 10 ft. across, interceptor 36 in. in dia. $1,650,000. T. J. Montgomery, city engr. CD 7/1/43.

O., Miamisburg—City, City Hall, $150,000 bond election Nov. 4, enlarge, imprv. sanitary sewerage sys., construct sewage disposal plant. $150,000. CD 10/24.

O., Toledo—City, Dpt. Welfare, Arthur Gratop, dir., Safety Bldg., new sewers, repairing existing sewers at Forest Cemetery. $132,000. CD 9/7/45, under Unclassified.

▲ O., Warren—City, sewage treatment plant along Mahoning River in Weathersfield Twp. $6,000,000. CD 11/12/47.

O., Westerville—Village, Ralph W. Snyder, city mgr., Westerville, sewage disposal plant, south of Shrock Rd., ¼ mi. south of corporation limits. $309,000. Burgess & Niple, 584 E. Broad St., Columbus, consult. engrs.

Pa., Elizabeth—Municipal Auth., Elizabeth, sewage treatment plant. $415,000. Richard J. Harmon, 222 N. Third St., Harrisburg, consult. engr.

S. C., Summerville—Town, Albert H. Peters, mayor, exten. sewerage sys. $125,000.

Tenn., Clarksville—City, sanitary sewer imprvs. $700,000. J. Stephen Watkins, 215 High St., Lexington, Ky., consult. engr.

Tex., Brady—Louis Burns & Assoc., Brady, sanitary sewers, $65,000; drainage, storm sewers, $60,000.

Tex., Pasadena—Brazosport Development Co., c/o Perry Lumber Co., Pasadena, sanitary sewers, $60,000; storm sewers, $60,000. Henry Johnson, 5717 Kirby Dr., Houston, consult. engr.

Tex., Pasadena—Brazosport Development Co., c/o Perry Lumber Co., Pasadena, sanitary sewers, $65,000; storm sewers, $60,000 in 2nd area off Deepwater St. Henry Johnson, 5717 Kirby Dr., Houston, consult. engr.

▲ Tex., Waco—City, City Hall, voted bonds May 13, Part 1, sewage disposal plant, $750,000; Part 2, sanitary sewerage sys. rehabilitation, $1,000,000; Part 3, sewer lift stations, $350,000; Part 4, new sanitary sewer lines, $2,900,000.

BRIDGES

Wash., Seattle—King Co., County-City Bldg., Zone 4, concrete box girder bridge over Judd Creek on Vashon Island, $110,000. H. Hadley, Seaboard Bldg., Zone 1, consult. engr. CD 3/27.

STREETS AND ROADS

▲ Ga., Atlanta—City and Fulton Co., City Hall, bond election July 1, complete Atlanta Expressway System. $12,700,000. Extended date. CD 4/18.

Ga., Augusta—City, City Hall, paving Reynolds, 12 and 13 Sts., $162,000. Patchen & Zimmerman, Daniel Field, Augusta, consult. engrs.

Ill., Chicago—City, City Hall, resurfacing 75 St., Cottage Grove to Eggleston Aves., Eggleston Ave. from 74 to 75 Sts., 74 St. from Eggleston to Ashland Aves., $200,000; resurfacing Division St. from Cicero St. to Grand Ave.; Division St. from Cicero St. to Austin Ave., $200,000. CD 4/24/45.

Miss., Okolona—Town, street imprvs. $175,000. CD 6/21/48.

O., Cleveland Heights—City, City Hall, 2953 Mayfield Rd., removing old sheet pavement and b. conc. resurf. Lee Rd. from Mayfield Rd. to city boundary. $180,000. Harry Gallimore, c/o owner, city engr.

Okla., Norman—City, City Hall, defeated $300,000 bonds Apr. 8, street imprvs. E. H. Durkee, city engr. CD 3/5.

S. C., Columbia—City, City Hall, 1952 street resurf. $200,000. CD 12/3/46.

Tex., San Antonio—Sears, Roebuck & Co., Romana Plaza, plans by Bartlett Cocke, 3301 Broadway, developing and paving 2,000 cap. auto parking area, $225,000. CD 6/14/51.

VIRGINIA—State Hy. Comn., Richmond.

Henrico Co.—four-lane highway from Richmond toward Greendale. $200,000. CD 4/8/49.

Alaska, Fairbanks—City, City Hall, voted bonds, road mix, surf. 6 mi. streets. $200,000.

EARTHWORK, WATERWAYS

▲ California—Pacific Gas & Electric Co., 445 Sutter St., San Francisco, hydro-electric project on North

Fork of Feather River and Butt Creek, two powerhouses, total capacity 153,000 kw., Plumas Co. $36,040,000. CD 4/7/47, under Industrial Buildings, Calif., Cresta.

† O., Zanesville—U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va., replace Dam 10 Muskingum River. $500,000.

▲ Tex., Freeport—Brazos River Harbor Navigation Dist., Freeport, 3,200 ft. harbor slip, $1,500,000; dredging new channel where it connects with old harbor channel, $200,000. CD 1/2/51.

Tex., Harlingen—Port Harlingen, Harlingen, addnl. canal and basin work. $150,000.

Tex., San Antonio—Sears Roebuck & Co., Romana Plaza, plans by Bartlett Cocke, 3501 Broadway, earthwork, site development grading, drainage leveling, $200,000. CD 6/14.

AIRPORTS

Ala., Montgomery—AIRFIELD IMPRVS.—City, imprvs. at Dannelly Field. $500,000. R. L. Kenan & Assoc., Bell Bldg., consult. engrs. CD 4/16.

▲ † Calif., El Toro—HANGAR, etc.—Dpt. Navy, San Diego, aircraft maintainance hangar, Tactical Area #11, NOY 62539, Spec. 33732, $1,000,000; water and sewer extensions, NOY 71129, Spec. 32653, $500,000; public works bldg. NOY 71129, Spec. 32683, $1,000,000; barracks, NOY 71128, Spec. 32682, $1,000,000, all at Marine Corp. Air Station.

▲ † Calif., Miramar—OPERATION BLDG., etc.—Dpt. Navy, San Diego, operations bldg., NOY 27064, Spec. 29064, $500,000; enlisted mens club, supply facilities, pump house, service station, NOY 71080, Spec. 32644, $1,000,000; aircraft parking areas, first increment, NOY 72616, Spec. 33806, $1,000,000, all foregoing at Naval Auxiliary Air Station. CD 1/8/51.

▲ † Calif., Point Loma—FACILITIES—Dpt. Navy, San Diego, development of facilities at Fleet Air Defence Training Center, NOY 71060, Spec. 32614, $1,000,000.

▲ † Calif., San Diego—TRANSPORTATION BLDG., etc.—Dpt. Navy, San Diego, transportation bldg. and altering Bldgs. 831 and 832 at San Diego Naval Air Station, NOY 71123, Spec. 32677, $1,000,000.

▲† Kan., Salina—AIRFIELD ADDNS.—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., airfield addns., Smoky Hill Air Force Base. $6,120,000.

▲† Kan., Topeka—AIRFIELD ADDNS.—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., airfield addns., Forbes Air Force Base. $15,737,000.

▲† Kan., Wichita—AIRFIELD ADDNS.—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., airfield addns., Wichita Air Force Base. $9,871,000.

▲ † Mich., Selfridge Air Force Base—AIRPORT FACILITIES—U. S. Eng., 1900 Cadillac Tower, Detroit, Zone 26, expansion of Selfridge Air Force Base, incl. barracks, runways, warehouses, lighting, fuel storage, fueling stations. $1,300,000.

▲† Neb., Fort Crook—AIR BASE—U. S. Eng., 1709 Jackson St., Omaha, addnl. construction at Offutt Air Force Base, incl. barracks and new taxiway. $1,085,000.

† Pa., Avoca—CONTROL TOWER—Civil Aeronautics Admin., U. S. Dpt. Commerce, 17 St. and Constitution Ave. N.W., Wash. 25, D. C., control tower at Wilkes-Barre-Scranton Airport. $175,000. CD 11/27/50, under Pa., Wilkes-Barre.

R. I., Westerly—HANGAR—State Aeronautics Div., State Airport, Hillsgrove, hangar and remodel admin. bldg., State Airport. $100,000.

▲ Tex., Houston—AIRPORT—City, City Hall, 900 Brazos St., addnl. municipal airport terminal work, some runway imprvs. $200,000; addnl. work incl. ramp and taxiway areas, baggage-loading areas, etc. $2,000,000. J. M. Nagle, P. Wks. Dpt. engr. CD 6/5/51.

LATIN AMERICA

Chile, Concepcion—Corporacion de Fomento de la Industria del Pacifico., Santiago, plans newsprint factory. $350,000.

Mexico, Mexico City—Asoc. de Funcionarios Judicales, Lic. Teofio Olea y Leya, pres., Calza. de M. Ocampo, 419 Mexico City, plans colony for federal courts, justices, judges and employees. $300,000.

Mexico, Ocotlan—Celanese Mexicana, V. Carranza, 25-614-17, Mexico City, plans hospital. $300,000.

▲ Mexico, Puebla—William Oscar Jenkins, Direccion Conocido, Puebla, plans cultural center. $1,200,000.

PUBLIC BUILDINGS

▲ Ala., Birmingham—HOUSING—Birmingham Housing Auth., c/o Chas. H. McCauley, archt., Jackson Bldg., Ensley Housing, incl. 700 units, $6,000,000 CD 3/21/50.

Ala., Birmingham—CLASSROOM—University of Alabama Birmingham Center, c/o Warren, Knight & Davis, Protective Life Bldg., classroom bldg., $675,000.

▲ Calif., Bakersfield—COURT HOUSE—Kern Co., Court House 60,000 sq. ft. Kern County Court House addn., $1,000,000. CD 11/14.

Calif., Berkeley—SCHOOL—Berkeley Bd. Educ., Rose and Walnut Sts., plans by Masten & Hurd, 52♦ Powell Sts.,

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Philip D. Barnard, 2036 Addison, Houston 5, Tex.
Western Steel Prod. Co., 1755 W. 13th Ave., Denver 4, Colo.

San Francisco, gymnasium at Garfield Junior High School, Rose and Josephine Sts., $500,000; plans by John Carl Warnecke, 507 Howard St., San Francisco, swimming pool at Burbank Junior High School, University and Bonar Sts., $100,000. CD 11/17/48.

Calif., Los Gatos—HOSPITAL—West Valley Hospital District, 131 W. Main St., plans by Sobey & Green, 125 W. Main St., hospital W. Parr and San Tomas Equino Rd. near here, $750,000 CD 9/28.

▲ Calif., Richmond—SCHOOLS—Richmond City Elementary and Richmond Unified High School Dist., 1108 Bissell Ave., plans by Schmidts & Hardman, 1320 University Ave., Berkeley, Ells Junior High School addns., 33 and Macdonald Aves., $550,000; Pottrero Elementary School, $302,000; Serra Elementary School, Yuba and Garwin Aves., $574,255; plans by Chas. F. Strothoff, 1855 Market St., San Francisco, John Muir High School, 23 St. and Cutting Blvd., $2,372,700; Amador Elementary School, $375,000; El Monte Elementary School, Tapscott and Gatto Sts., El Cerrito, $460,000; Punta Loma Elementary School at Cutting and Lagunitas Sts., El Cerrito, $415,000; Madera Elementary School, Arlington and Brewster Sts., El Cerrito, $565,000; plans by Donald L. Hardison, 225 Broadway, Richmond, Del Mar Elementary School, E. Cerrito, $480,000. CD 3/26.

▲ Calif., Stockton—SCHOOL—Stockton Unified School Dist., 324 N. San Joaquin St., plans by Mayo & Johnson, 307 Exchange Bldg., Daniel Webster High School, $1,800,000. CD 6/14/51.

▲ Conn., Naugatuck—HOUSING—Boro of Naugatuck Housing Auth., 270 Church St., plans by Henry T. Moekel, 35 Hillcrest Ave., moderate rental housing next to Lewis Meadows, $1,186,000. CD 10/17.

Conn., Wallingford—HOUSING—Borough of Wallingford Housing Auth., Town Hall, plans by Henry T. Moekel, 35 Hillcrets Ave., Naugatuck, housing, $900,000.

Del., Newark—HOME ECONOMICS, etc.—University of Delaware, Newark, plans by E. William Martin, 830 West St., Wilmington, home economics and education bldg. $840,000. CD 2/2/51.

▲ Ga., LaGrange—HOUSING—LaGrange Housing Auth., LaGrange, 300 housing units. $2,000,000.

† Maryland—BUILDING—U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C., building at Army Map Service, 6500 Brooks Lane, Wash. 25, D. C. $846,000.

▲ Mich., Ann Arbor—COUNTY—Bd. Supervs. Washtenaw Co., plans by R. S. Greganoff, 290 N. Washington St., Ypsilanti, 3 story, brick, steel, concrete county bldg. $3,500,000. CD 4/10/50.

▲ Mich., Waterford—SCHOOL—City, Bd. Educ., Waterford, brick, steel Junior High School. $1,000,000.

Minn., Bricelyn — SCHOOL — Bd. Educ., Independent School Dist. 132, V. Thompson, clk., plans by Haarstick, Lundgren & Assoc., W. 1385 First National Bank Bldg., St. Paul, grade school $500,000.

† Neb., Grand Island—WAREHOUSES—U. S. Eng., 1709 Jackson St., Omaha, 3 warehouses, a dunnage and change house at Cornhusker Ordnance Plant. $571,000.

Neb., Ralston—SCHOOL—Bd. Educ., Ralston, voted bonds, school. $500,000. J. W. Radotinsky, 1401 Fairfax Trafficway, Kansas City, Kan., archt. CD 5/7.

▲ N. J., Camden—HOUSING—Camden Housing Auth., City Hall, plans by Radey & McNelly, 101 N 7 St., housing, Central Ave., 7, 9 and VanHook Sts., $3,500,000. William T. Harker, 307 Market St., consult. engr. CD 4/14/50.

† N. J., Trenton—ARMORY, etc.—Dpt. Army, 121 N. Broad St., Phila., Pa., plans by Electronics Associates, 155 W. Main St., Somerville, Pa., armory and motor vehicle storage bldg. $500,000. CD 1/11/51.

▲ N. Y., New York—HOUSING—New York City Housing Auth., 63 Park Row, Zone 38, 1,300 family housing in an area between 9 and 10 Aves. from W. 46 to W. 49 Sts. to be called Governor George Clinton Houses. $21,825,000.

▲ O., Akron—PHYSICAL EDUCATION—University of Akron, Dr. Norman P. Auburn, pres., 302 Buchtel St., physical educ. bldg. at Brown and Carroll Sts. with swimming pool; arts and science bldg. at Brown and Buchtel Aves., student bldg. addn. $2,575,000. CD 10/18/45.

O., Cincinnati—SCHOOL—Bd. Educ., 216 E. 9 St., plans by Frankenberger, Junker & Lensky, 15 E. 8 St., school, Elbrook Ave. $658,000. CD 4/3.

▲ O., Dayton—SCHOOLS—Van Buren School Dist. Bd. Educ., Far Hills Ave., voted bonds, schools and impr. present schools, $1,200,000. CD 4/1.

▲ O., West Carrollton—SCHOOL—Bd. Educ., West Carrollton, voted bonds school building program, grade school and industrial arts bldg. for high school. $1,050,000. CD 4/16.

▲ O., Painesville—HOSPITAL—Lake Co. Memorial Hospital, Painesville, Hospital addn. for 150-beds. $2,000,000.

▲ O., Zanesville—HIGH SCHOOL—Bd. Educ., Zanesville, $2,100,000 bond election Nov. 4, new high school, remodel present high school into Junior High School. CD 11/11/48.

▲ Pa., Emporium—SCHOOL—Emporium Area Schools, Emporium, plans by Raymond Viner Hall, Lynn Hall, Port Allegheny, 1 story, part bsmnt., 400x600 ft. Junior and Senior High School. $1,000,000.

Pa., Levittown—SCHOOL—Bristol Twp. Bd. Educ., Rodgers Rd. Bristol, plans by Howell, Lewis, Shay, Packard Bldg., Phila., John Fitch Elementary School $900,000.

Pa., Meadville—COURT HOUSE—Bd. Comrs., Crawford Co., Meadville, plans by Edward J. Hanna & D. Fuller Stewart, Meadville, two 40x50 ft., and one 53x75 ft., stone county court house addns., alterations. $850,000.

Pa., Oil City—HIGH SCHOOL—School Dist., Cornplanter Twp., R.D., Oil City, and State School Auth., Harrisburg, plans by Wm. Holmes Crosby, Box 603, Junior High School. $500,000.

▲ Pa., Pittsburgh—WAREHOUSE and GARAGE—City, Dpt. P. Wks., City County Bldg., 8 story, brick, block, steel warehouse and garage, $3,590,000. John Cormman, city engr. CD 8/9/46.

Pa., Yardley—SCHOOL—Lower Makefield School Auth., Pennsbury High School, plans by Micklewright & Mountford, 72 Ewing St., Trenton, N. J., 11-room addn. to present elementary school, Makefield Rd. at School Lane, $600,000. CD 12/28/45.

▲ Tenn., Dyersburg—HOSPITAL—Dyer Co., hospital. $2,000,000.

▲ Tenn., Morristown—HOSPITAL—Hamblen Co., hospital. $1,000,000.

▲ Tex., Rockdale — SCHOOLS — Rockdale Independent School Dist., Rockdale, voted bonds May 17, Intermediate School for Negroes, $300,000; high school unit, $425,000; 20-room elementary school, $325,000. George L. Dahl, 2101 N. St. Paul St., Dallas, archt. CD 5/9.

Tex., San Antonio—HEALTH CENTER—City, City Hall, Military Plaza, plans by Atlee B. & Robert M. Ayres, Transit Tower, health center. $800,000. CD 12/20.

Va., Alexandria—SCHOOL—Bd. Educ., 208 N. Columbus St., plans by Joseph H. Saunders, 121 S. Columbus St., Shirley-Duke School. $780,000. CD 1/18/51.

Wash., Seattle—SCHOOL—School Dist. 1,815, 4 Ave. N., elementary school, near Olympic View golf course, $750,000.

▲† Wash., Walla Walla—HOSPITAL—Veterans Admin., Vermont Ave. between H and I Sts. N. W., Wash. 25, D. C., 2 ward bldgs. at veterans hospital, $4,000,000. CD 6/13/45.

Wis., Milwaukee—TRAINING SCHOOL—Bd. Regents of State College, Madison, plans by Eschweiler & Eschweiler, 720 E. Mason St., Zone 2, training school, $750,000.

COMMERCIAL BUILDINGS

Ark., Little Rock—SCHOOL—St. Mary's Academy, 3224 Kavanaugh St., plans by Erhart, Eichenbaum & Rauch, Wallace Bldg., school, $500,000.

Mich., Battle Creek—HOSPITAL—Community Hospital, Ralph W. Matthes, chn., Battle Creek, 2 story, brick, steel community hospital addn. $750,000.

Mich., Center Line—SCHOOL—St. Clements Parish, Center Line, plans by Diehl & Diehl, 120 Madison St., Detroit, 2 story, bsmnt., brick, steel, concrete parochial school, $750,000.

N. Y., Brooklyn—DORMITORY and RECREATION—Pratt Institute, 215 Ryerson St., Zone 5, plans by McKim, Mead & White, 101 Park Ave., New York, dormitory

(Continued on page 142)

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(Continued from page 140)

and recreation building, Willoughby Ave., Ryerson and Hall Sts. $750,000.

N. Y., Hollis—STORE and OFFICE—Morton Pickman, c/o Joseph Schafran, archt., 200 W. 72 St., New York, 23, N. Y., 1 story, store and office, Hillside and Foothill Aves., 202 St. and Francis Lewis Blvd. $500,000.

▲ **O., Berea**—APARTMENT PROJECT—Volk Constr. Co., 541 Bradley Rd., Bay Village, 200-unit garden type apartment on 21-acre tract on North Rocky River Dr. near New York Central under pass. $2,000,000.

▲ **O., Cleveland**—APARTMENT—Lamel Corp., Marshall Bldg., Zone 14, four bldg. apartment, Milverton Rd. between E. 136 and E. 137 Sts. $1,000,000.

O., Dayton—SHOPPING CENTER—Link Cowen, Shawnee, Okla., Clinton & John D. Murchison, Dallas, Tex., Norman K. Winston and David Muss, 22 W. 48 St., New York, N. Y., 300x840 ft. shopping center, with 15 stores, Airway and Spinning Rds. $750,000.

Tex., Amarillo—RETAIL STORE—Fedway Stores, Inc., Amarillo, plans by The Austin Co., 5906 Velasco St., Dallas, masonry retail store, $800,000.

▲ **Tex., Brady**—DWELLINGS—Louis Bruns & Harvey Shanks, Brady, 40 frame type dwellings, $310,000; 60 frame dwellings, $425,000; 52 frame dwellings, $375,000, north of here.

▲ **Tex., Houston**—DWELLINGS—J-m West Building Co., 226 Winkler St., plans by Carroll & Howard, 6620 Long Dr., 40 dwellings, Ridgeway Dr. $390,000; 36 dwellings on Northridge St. $360,000; 30 frame dwellings, concrete slab fd. off Lyndhurst St. $325,000.

▲ **Tex., San Antonio**—DEPARTMENT STORE—Sears, Roebuck & Co., Romana Plaza, plans by Bartlett Cocke, 3501 Broadway, general department store, $2,500,000. CD 6/13/51.

▲ **Tex., San Antonio** — DEPARTMENT STORE — Sears, Roebuck & Co., Romana Plaza, (second unit), department store, $1,742,400.

Wash., Longview — HOSPITAL — St. John's Hospital, Longview, plans by J. W. Maloney, Central Bldg., Seattle, Zone 4, Wash., hospital addn., $472,500.

Alaska—HOSPITAL—St. Ann's Hospital, Juneau, plans by Foss, Malcolm & Olsen, Juneau, 4 story hospital addn. $500,000. CD 5/9.

Ont., Owen Sound—COLLEGIATE—North Grey High School Bd., Findlay McDonald, chn., Owen Sound, 3 story Owen Sound collegiate and vocational school, $500,000.

▲ **Que., Montreal**—OFFICE—Montreal Life Insurance Co., 625 Burnside Ave., Montreal, Que., plans by Barott, Marshall, Montgomery & Merrett, Canada Cement Bldg., 5 story, bsmnt., office bldg. Sherbrooke St. W. and Union Ave. $1,000,000. Lindley Shector, Canada Cement Bldg., Montreal, Que., engr.

Que., Sweetsburg—HOSPITAL—Brome-Missisquoi-Perkins Hospital, Dr. P. E. Roy, chn., plans by E. J. Turcotte, 1478 St. Catherine St. W., Montreal, hospital to serve Brome and Missisquoi Counties, $675,000.

INDUSTRIAL BUILDINGS

Md., Baltimore—WAREHOUSE, etc.—Food Fair Stores, Inc., 2223 E. Allegheny Ave., Phila., Pa., 1 story, 265x560 ft., brick, steel warehouse and office, 1301-1401 Edison Hy. $510,000.

▲ **Mich., Warren**—LABORATORY—General Motors Corp., Technical Center, 30800 Mound Rd., plans completed by Argonaut Realty Div., General Motors Corp., 7-217 General Motors Bldg., Detroit, 3 story, part bsmnt., 60x690 ft., brick, steel, concrete laboratory bldg., incl. auditorium, offices, library, Mound Rd. $1,250,000.

▲ **Miss., Vicksburg**—PLANT—Spencer Chemical Co., Box 604, Pittsburgh, Kan., unit for production of anhydrous ammonia, $1,350,000, Air Products, Inc., 733 W. Broad Emmaus St., Allentown, Pa., consult. engrs.

▲ **Mo., Pleasant Hill**—PLANT—Missouri Public Service Co., Ralph J. Green, pres., Warrensburg, 27,000 kw. turbo-generator power generating plant, incl. 200,000 lb. per hr. steam boiler, etc., $5,000,000.

Mo., St. Louis—SERVICE—Monsanto Chemical Co., 1700 S. Second St., Zone 4, plans by P. John Hoener & Assoc., and Robert L. Fischer, assoc. archt., 4607 Beck Ave., Zone 16, 141x222 ft., brick, rein.-con. service bldg., 34 ft. high, 1911 S. Second St. $800,000, Wm. C. E. Becker, Ambassador Bldg., 411 N. 7 St., Zone 1, consult. engr.

▲ **N. J. Gibbstown**—PLANT—Hercules Powder Co., Delaware Trust Bldg., Wilmington, Del., hydrochemical plant, incl. railroad spur, sewage and water lines $8,000,000.

N. J., Koseland—PLANT—Kidde Mfg. Co., Inc., 46 Farrand St., Bloomfield, knitting machine mfg. plant, $500,000.

▲ **N. M., Prewitt**—REFINERY—Malco Refineries, Inc., Roswell, catalytic reforming refinery unit, $1,250,000; thermal refinery cracking units, $750,000; polymerization unit, $650,000.

▲ **Tex., Pampa**—PLANT—Celanese Corp. of America, 180 Madison Ave., New York, N. Y., celanese plant, Kings Mill, near here $5,000,000.

UNCLASSIFIED

▲ † **Calif., Camp Pendleton**—RIFLE RANGES—Dpt. Navy, San Diego, rifle ranges at Camp Pendleton Marine Barracks, NOY 72689, Spec. 33879. $1,000,000.

Ill., Fairfield—NATURAL GAS DISTRIBUTION—City, Kelley Loy, city atty., City Hall, natural gas dist. system, incl. 15 mi. line to connect system and trunk line of Trunklin Gas Co., $750,000.

La., New Roads—NATURAL GAS SYSTEM—Pointes Coupee Parish Police Jury, New Roads, voted $600,000 bonds, natural gas sys. in Wards 6, 7, 5, 8 and 9.

▲ **Michigan**—RURAL DISTRIBUTION LINES—Cloverland Electric Co-operative, Sault Ste Marie, 247 mi. rural distr. lines, 33 mi. electric transmission line system imprvs., Chippewa Co. $1,200,000. CD 5/22/47.

▲ **New Mexico and Arizona**—PIPE LINE—Malco Refineries, Inc., Roswell, N. M., 60 mi. products pipe line extens. from Prewitt west to Lupton, Ariz., $475,000; 100 mi. products line from area of Prewitt to vicinity Albuquerque, $850,000; exten. 60 mi. of 4 in crude oil line, Prewitt to new Pettigrew-Tocito field in northwest New Mexico, $550,000.

▲ **Okla., Lake Texhoma**—RESORT HOTEL—State Planning Bd., Capitol, Oklahoma City, plans by Dow Gummerson, Enid, tourist resort hotel on Lake Texhoma. $2,000,000.

South Carolina—RURAL DISTRIBUTION LINES—Salkehatchie Electric Co-operative, Barnwell, 200 mi. rural distr. lines and sys. imprv., Barnwell Co. $560,000. CD 6/21/45.

South Dakota—RURAL DISTRIBUTION LINES—Rosebud Electric Assn., Gregory, rural distr. lines and sys. imprvs. $395,000. Raymond H. Reed & Co., Columbus, Neb., consult. engrs. CD 7/10/50.

▲ **Texas and Oklahoma**—TRANSMISSION LINE—Lone Star Gas Co., 1915 Wood St., Dallas, 70 mi. 20 in. transmission line. $1,400,000.

▲ **Texas**—GAS LINE—Wilcox Trend Pipe Line Co., c/o Harry Bass Drilling Co., Magnolia Bldg., Dallas, 70 mi. 22 in. big-inch gas pipe line radiating from Provident City, $2,000,000; 30 mi. 14 to 18-in. tie gas lines, Provident City, $500,000; 4 to 12-in. gas gathering pipe line sys., Provident City, $150,000.

▲ **Tex., Houston**—DRIVE-IN THEATRE—Long, Inc., c/o Julius M. Gordon, c/o Jefferson Amusement Co., Jefferson Theatre Bldg., plans by L. C. Kyburz, Beaumont, 1,100-auto capacity drive-in theatre, South Park and Holmes Rd. $1,000,000.

Tex., Morton—SWIMMING POOL, etc.—Cochran Co., Morton, voted bonds, rein.-con. swimming pool, $75,000; county park, exhibit bldgs., agriculture bldg., etc., $350,000. Butler-Brasher Co., 414 Avenue "M," Lubbock, consult. engr.

▲ **British Columbia**—RAILWAY LINE—Canadian National Rys., B. Wheelwright, ch. engr., 360 McGill St., Montreal, Que., 46 mi. branch line from remote B. C. village into Northern British Columbia now famous Kitimat aluminum project. Approx. $10,000,000. CD 8/10/51.

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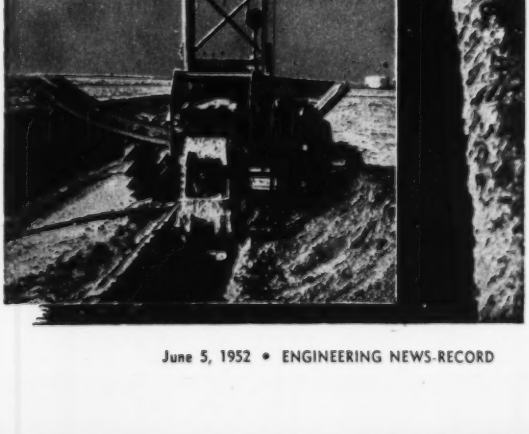

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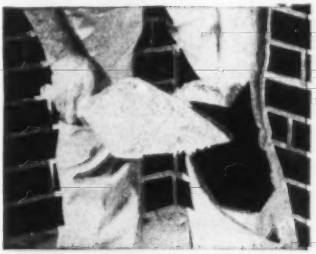
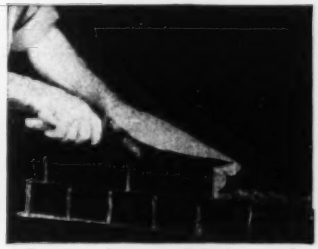


Method 1. Plenty of mortar should be thrown on the end of the brick to be placed.

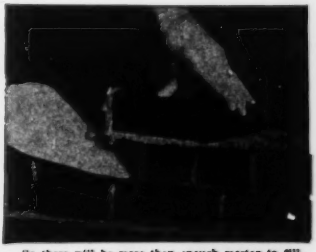
The brick should then be pushed into place.

So that the mortar oozes out at the top of the head joint.

Method 2. A dab of mortar should be spotted on the corner of the brick already in place.



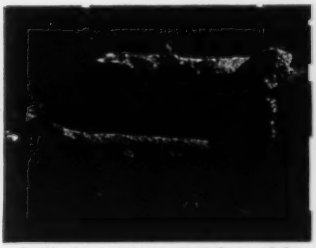
Then plenty of mortar should be thrown on the end of the brick already in place.



So there will be more than enough mortar to fill the joint completely when the next brick is pushed into place.

Method 3. A full trowel of mortar should be thrown on the wall.

Then the brick should be shoved into this deep bed of mortar.



So that the mortar oozes out at the top of the joint.

BRIXMENT permits the bricklayer to do the kind of work pictured above. It does not stiffen up too fast, when it hits the brick. It remains rich and plastic long enough to allow the bricklayer to place the brick, easily and accurately.

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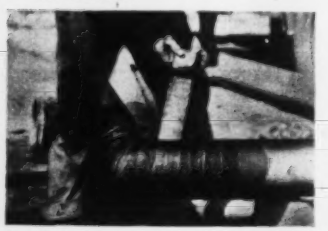

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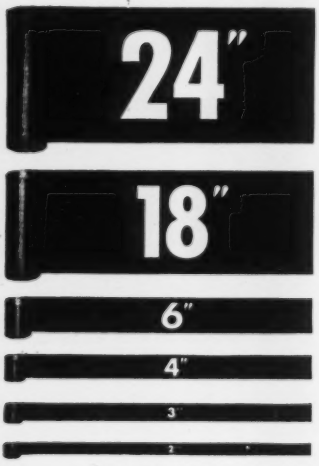

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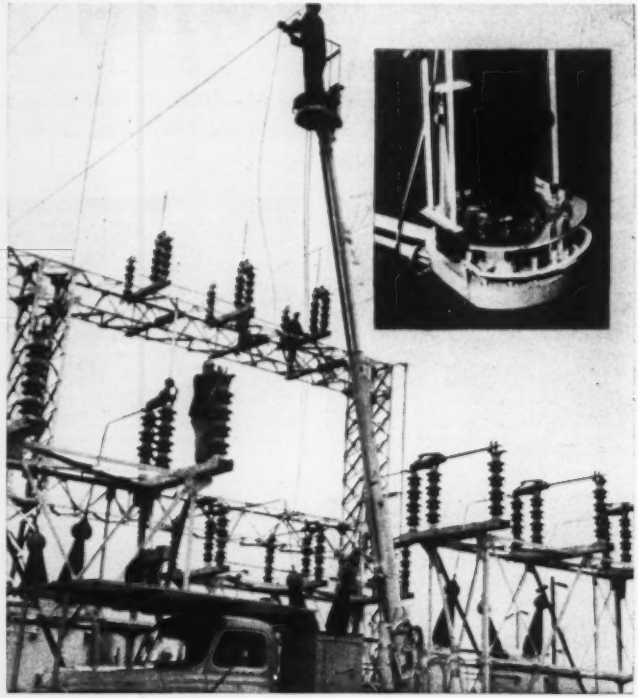

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Boom and cage will easily carry a 200-lb man at any angle from horizontal to vertical with a safety factor of 4 to 1. They are self-locking in case the engine stops and, if necessary, the boom can be lowered without oil pressure. They retract into compact traveling position with a clearance of 10 ft 6 in. The Industrial Monkey can be mounted on any truck of 2 tons or heavier provided there's 102 inches from rear of cab to centerline of rear axle. Turning radius is 270 deg, from a point 30 deg left front of the cab to a point 60 deg off the left rear corner. Electric power companies out West use them extensively for clearing overhead branches, pole and line work, street light installation and maintenance etc. THE DONWILL COMPANY, 835 S. E. MAIN STREET, PORTLAND, OREGON.

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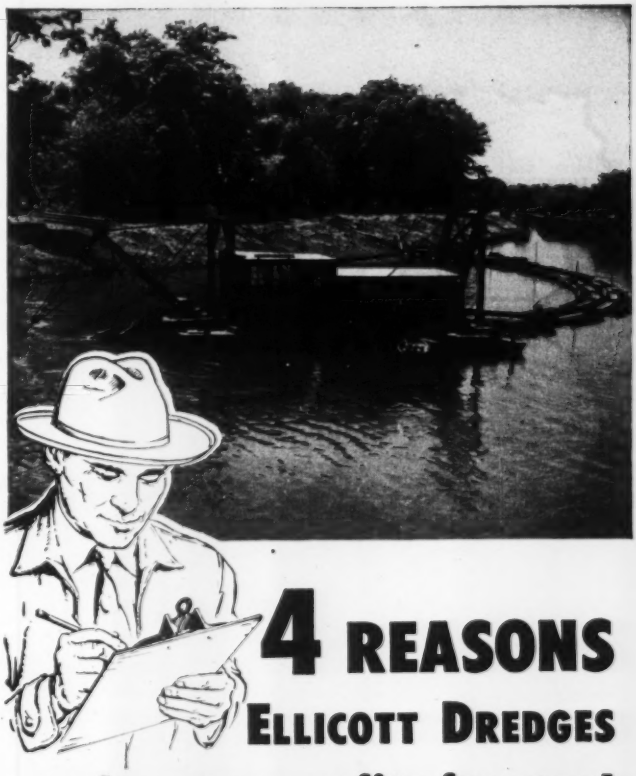
(Continued on page 147)



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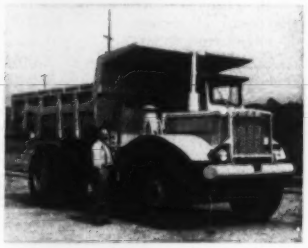

Kenworth dump truck features offset cab

Production of the new heavy-duty, end-dump Earth-Mover No. 801 has begun at the Seattle plant of Kenworth Motor Truck Corp. Rated 9.9 cu yd struck and 11.9 heaped, its payload capacity is 15 tons. Its features include antifriction steering, minimum turning radius and wide-axle track. The offset cab provides maximum visibility fore and aft. Power is supplied by a Cummins NHBID-600, developing 220-hp at 2,100 rpm; 535-lb-ft torque at 1,400 rpm; 743-cu-in piston displacement. KENWORTH MOTOR TRUCK CORPORATION, SEATTLE 11, WASHINGTON.

High-temp grease is also water-resistant

In answer to increasing demands for standardized gun-greases resistant to water and extreme temperatures, D-A Lubricant Co. has come up with one for the heavy-duty field called D-A Lithium. It's said to combine the advantages of high melting point and complete water resistance with a tenacity to metal under the hottest operating conditions. Further it's claimed to be equally effective in summer or winter for all pressure fittings and bearings. Packaged in 35-lb pails and in 100- and 400-lb drums by D-A LUBRICANT COMPANY INC., 1331 W. 29TH STREET, INDIANAPOLIS, INDIANA.

Liquid foil used on built-up roofing

A new material, designated as Permalume Type 3 Aluminum, is a liquid foil for use on tar or asphalt built-up roofing to replace the usual flood coat and gravel surfacing. It differs from original Permalume in that it forms thicker films in one coat applications, has somewhat less stretch but is more leather-like, while retaining low temperature flexibility and stability to undue softening up to 250 F.

(Continued on next page)

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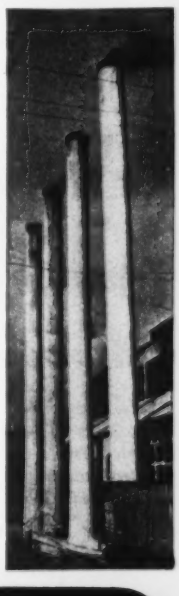
REBUILDS STACKS
Without Service Interruption

By using "GUNITE", Cement Gun Co. crews were able to rebuild these stacks at a large Ohio steel plant while the furnaces were on heat. With these soaking-pit stacks in full operation, asbestos sheeting was wrapped around the steel shell and reinforcing attached. A coating of insulating mortar was shot on to line the stack and the structure was completed by shooting "GUNITE" in place. By using "GUNITE" our crews completely eliminated costly "down-time and the expense of dismantling the old stacks.

Many instances of repair, remodeling and new construction with "GUNITE" are described and pictured in Bulletin A2400. A request on your letterhead will bring your free copy by return mail.



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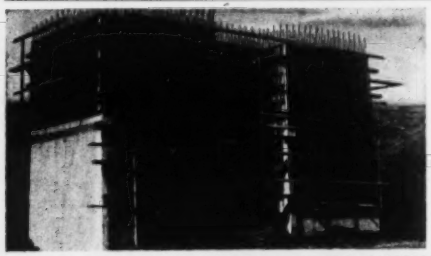

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Atlas Speed Forms are interchangeable for use on slabs, walls, circular tanks, manholes, modular structures. For Rent or Sale.

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SPEED FORMS can be set up, stripped, cleaned, moved and reused much faster than wood. Lightweight, easy to handle. Interchangeable for use on walls, slabs, circular tanks, manholes, modular structures.

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NEW PRODUCTS

According to the manufacturer, when used to replace tar or asphalt and gravel roof surfacing, weight savings are 350 lbs per square or more, which enables further large savings in lighter structural designs for dead loads. Other advantages are its reflective properties, ease of application by brush, spray or mopping, elimination of gravel stops, low initial cost and labor savings and increased protective qualities. GREMS MANUFACTURING CO., 5635 S. 6th ST., KLAMATH FALLS, ORE.

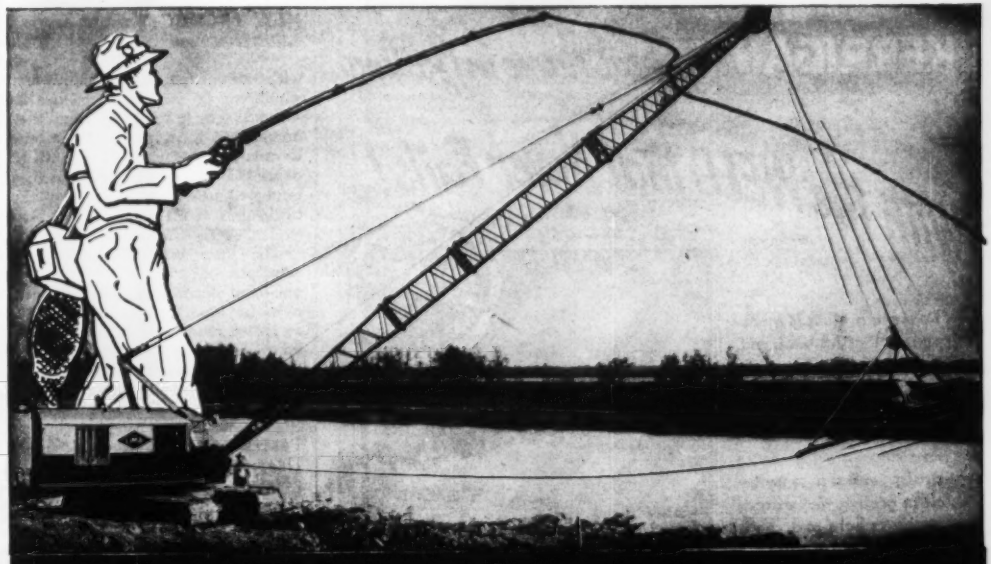
New line of improved combination chair carriers

A new series of improved combination chair carriers and fittings for wall hung closest installations is called the Plumb Easy line. They simplify and save time in alignment and installation of closets, now specified for almost all public installations. Each carrier has a fully adjustable outlet connection and off-cented vent stack hub to allow additional clearance behind the fixture where it's often needed for other rough-in piping. They're designed so that all weight on the bowl is transferred to the floor beneath, eliminating stress on walls and wall surfaces. They're manufactured to fit all makes of wall hung closet fixtures, and available from JAY R. SMITH MANUFACTURING CO., UNION, NEW JERSEY.

New speedmatic saws called world's safest

Said to be the world's safest electric saw for contractors, builders, and carpenters are the two new speedmatic models which feature a kickproof clutch. When the blade binds in a cut or strikes a knot, this kickproof or friction clutch allows the motor to turn while the blade remains stationary, eliminating possibility of dangerous kickback. The new clutch protects the operator, prevents damage to the gears and the work and reduces motor burnout. To save time on each job, the new Speedmatics are equipped

(*Continued on page 150*)



LIMA DRAGLINES use *The Fisherman's Secret* FOR A GOOD CATCH

When you're fishing, and want to drop the bait in the far pool where the big ones are waiting, your reel's got to be *friction-free* to let that line flow out, smooth as cream from a jug. And, after the strike, come in the same way.

When you're after record yardage, a smooth flowing line is just as vital . . . so we took a tip from the fisherman, and made our reels friction-free. You can 'cast' the dragline bucket further, increase your radius of efficient operation from each location. You can bring in bigger catches, because more power is going into the work lines and less into *friction drag on the machinery*. And there's further big benefits from reduced maintenance . . . less frequent lubrication, and smoother operation, because misalignment from bearing wear, that affects clutch alignment and functioning, is eliminated.

Lima pioneered the use of anti-friction bearings at all important bearing points on draglines, shovels, and cranes. They've kept on pioneering with other improvements that put Lima equipment in the top rank of profitable performers. If you want proof of this—just ask the Lima user. If you want details on how to put Lima equipment on your *pay-off* roll . . . just get in touch with us.

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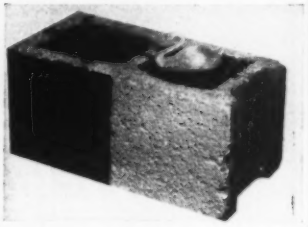
NEW PRODUCTS . . .

with an instant depth adjustment which can be set accurately in a few seconds. The saw moves up and down on dovetail ways, precision machined to maintain accuracy of cut at any depth. It's also equipped with an improved safety guard covering more blade and tooth area, and said not to jam with chips or wet sawdust.

The saws were designed on the principle of true balance for easy one-hand operation freeing the other hand for holding the work. The new kickproof models also retain the right-hand blade so that the saw rests on the main piece rather than the piece to be cut off. Another built-in feature is the instant bevel adjustment which can be set quickly and remains set. PORTER-CABLE MACHINE COMPANY, DEPT. PR-5, SYRACUSE 8, N. Y.



One-coat sealer for masonry units

The manufacturer of Bloc-seal, a one-coat, oil-base masonry seal shows here a graphic demonstration of his product by painting a cement block with his product, sealing its bottom, filling it with water and floating a toy duck on the water. The new paint can be applied above or below grade, on exterior and/or interior, as conditions require. It's applicable direct-from-the-can with no necessary sizing. One gallon is said to cover from 100 to 250 sq ft, depending on porosity and surface irregularities. Seven pastel colors include white, buff, ivory, pale green, brick red etc. THE SURFACE PROTECTION CO. INC., 16801-C EUCLID AVENUE, CLEVELAND 12, OHIO.

Combination gas and oil burner for heating units

A new combination oil-gas burner that takes the worry out of possible fuel shortages has just been announced for the complete line of Thermobloc industrial type forced warm-air, direct-fired heaters (ENR Sept. 13 '51, p. 134). The combination burner permits instantaneous changeover either way with no piping or burner changes. The changeover may be automatic or

with manual pushbutton. Burners can operate for the better part of a heating season on the more economical fuel available with changeover occurring whenever necessary. The new burners have been extensively installed in the Kansas City, St. Louis and Ohio areas where users enjoy a "dump-load" rate. Limited gas supplies in these sections of the country have meant that no new straight gas heating loads could be imposed on the line. Gas companies permit this type of installation, according to the manufacturer, because they can free them to shut off supplies at any time without imposing hardships on users. THERMOBLOC DIVISION, PRAT-DANIEL CORP., SOUTH NORWALK, CONNECTICUT.

New product briefs . . .

A face shield with sufficient clearance to be worn over glasses and/or industrial goggles has been designed and manufactured by the **Boyer-Campbell Co., Safety Division, 6540 San Antoine Street, Detroit 2, Michigan.** Identified as Model 301, the shield is glove-buttoned to a form-fitting headgear. The greater clearance for glasses and goggles automatically affords better ventilation. Three types are interchangeable on one headgear: plastic shield for general utility, fibre front for gas welding, screen window for scaling, heat, cyaniding, etc.

Said to be the first basic improvement for years in **belt conveyor idlers, a greasing design** is announced by **Chain Belt Company, 1600 W. Bruce Street, Dept. PR, Milwaukee 4, Wisconsin.** Rigid steel grease piping has been replaced by reinforced flexible grease tubing which will take higher gun pressures. These sections are made of just the right length to make them hug the sides of an inverted angle or channel base. Grease tube extension to the far side is accomplished by threading a flexible section through the base to the grease fitting at the near side. No other changes are necessary.

An improved line of **bolt cutters, strap shears, hot line wire cutters and sheet metal hand tools** is being introduced by the **Interstate Drop Forge Co., 4051 N. 27th St., Milwaukee,** who recently acquired the tool line of the Helwig Mfg. Co., St. Paul. This line is now re-appearing with heat-treated, drop-forged handles, plates and jaws. Helwig replacement parts, as well as the complete line of 18 major tools, are available from the Interstate Co.

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Construction, 1962

THIS YEAR, marking the centennial of the American Society of Civil Engineers, is certain to bring forth more than an ordinary number of speeches and papers in which a look into the future will be attempted. How far into the future such planning can justifiably be projected must, of course, depend upon the type of decision required and by the facts that are available. Obviously, back in 1852, when the ASCE was formed, there would have been little point in worrying about the conditions that we face today, 100 years later. Our construction ancestors could properly have been concerned with the price of mules and their feed, but to have spent time dreaming about the cost of tractors and diesel fuel would have been as unprofitable as for us to worry about the supply of canned cosmic rays.

As it turned out, a look even 10 years ahead of 1852 could well have been misleading, because by 1861 the nation was at war—engaged in tearing down rather than building. Still, although the seeds of the conflict were being planted, a 10-year prophecy could have been made, and then progressively revised.

CONDITIONS TODAY are not too unlike those of a century ago. Seeds of war are again being planted, but it is not certain in 1952, as it was not in 1852, that they will germinate. If they do not—and that is always the hope—the dimensions of construction ten years hence are worthy of as careful a study as can be made.

Such a study was recently completed by the McGraw-Hill Department of Economics. While it related to business as a whole, construction was one of the influencing factors, as well as one of the major parts of the economy that would be influenced by what may happen. The conclusions are both encouraging and disconcerting.

STARTING WITH what seems the surest growth factor, population, they assume a 14% increase to 175 million. The proportion of this population constituting the working force is predicted to be somewhat less than at present because of fewer babies born in the 30's and the impact of increased old-age retirement. Moreover the people who will then be working—67.7 million of them —will average 40 hours a week instead of the present 44. As a consequence the total man-hours worked in 1961 will be down—from the present 146 billion to 140.

Under such a set of conditions, growth can only come from increased productivity by those who are working —predicated on efficient management and a political and social climate that fosters investment in the tools and a desire to use them vigorously. The economists, being not too hopeful, merely project the trend of the past 20 years—a 2% annual increase. And as a consequence (and using 1951 dollars), they predict an output of $2.70 per man-hour in 1962, which multiplied by the total man-hours (140 billion) produces a total national output of about $380 billions, up 16% from 1951. These are the figures for business as a whole.

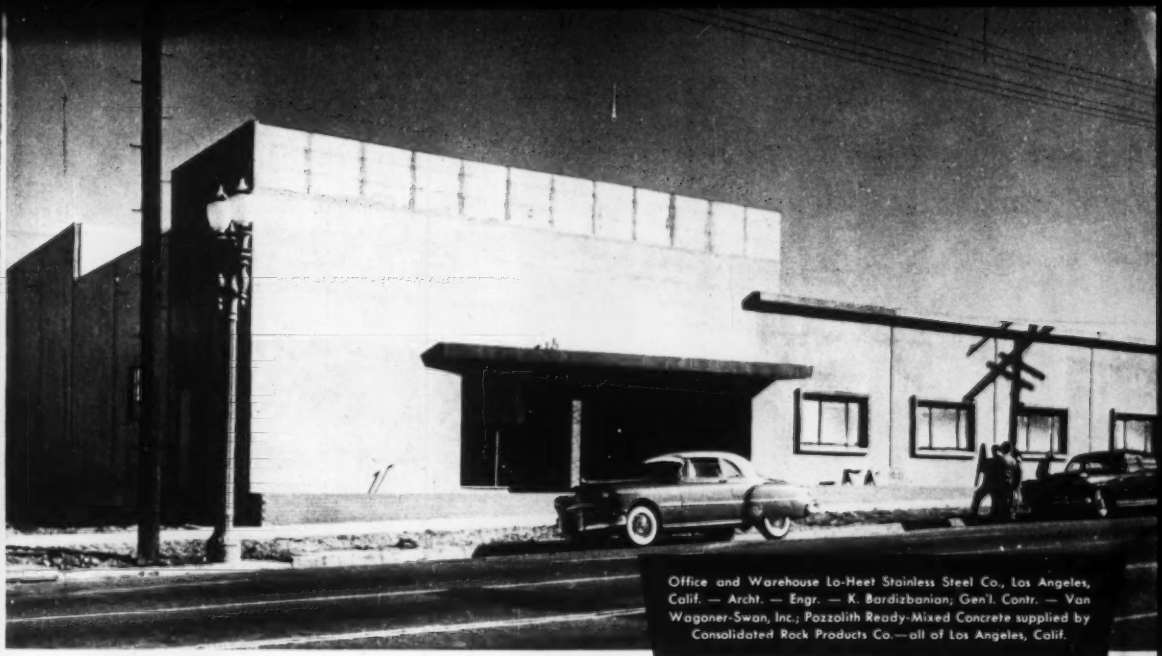
AS TO THE CONSTRUCTION INDUSTRY, the economists are inclined to place it among those on the top side of the average, and accord it a growth to $36 billion a year of new construction in 1961. This is a 20% increase, and will be attained by accelerated activity in the construction of stores and other commercial buildings, of hospitals and highways. Housing is due to taper off, but still maintain a relatively high level if people are prosperous enough to "trade in" their present accommodations for better ones. Dam building will continue at pre-Korea rates, and airport, park and recreational facilities will make sizeable contributions. In general, public construction will probably increase faster than private work.

Still, the study finds, a number of industries are destined for much faster growth than construction (chemical up 75%, electric power up 100%, natural gas up 200%, for example), and construction must service these with facilities. So the industrial boom is not necessarily over. Indeed it cannot slacken much and yet provide the tools for the required increase in productivity.

Here is where the encouraging aspect of the study leaves off, and a disconcerting element becomes apparent. For it is disconcerting and discouraging to note that the economists believe that "it is altogether possible for the United States economy to increase its productivity 3 to 5% a year" yet can only prophesy a 2% increase because of signs that governmental policies and labor-management cooperation will not permit any more.

THE CHALLENGE IS CLEAR. It is to double our output that is held down only by a lack of intelligent, hard work. Such a challenge was not available to our early forbears who had little more than their bare hands to work with. Our great sources of power, our improved communications, our tremendous industrial resources provide an opportunity for advancing civilization faster than at any other time in history. The construction industry is in the vanguard of those possessing this opportunity. To be satisfied with a 2% a year increase in output per man-hour, when twice that much is possible and practicable, would be a shameful way to celebrate a centennial.

Construction, 1962, should be able to record that the economists of 1952 underestimated its ability to produce, and overestimated its timidity in meeting obstacles with courage and vision.



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reports general contractor

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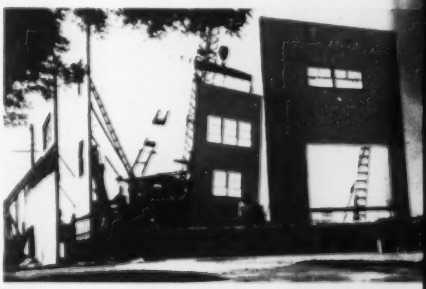
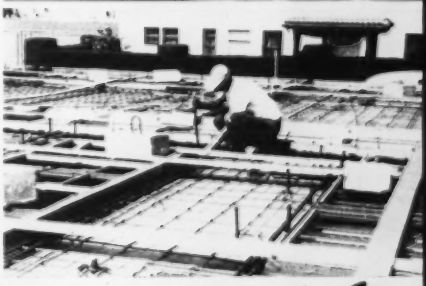
> "In the construction of our tilt-up concrete units, we have found that Pozzolith definitely decreases shrinkage and the cracking which results from this shrinkage.
>
> "Pozzolith also increases the strength of concrete, allowing us to shorten the time materially between casting and lifting. The decrease in water content with Pozzolith eliminates crazing of surface."

Whatever *your* concrete requirements, Pozzolith will enable you to obtain them *at lower cost than by any other means.*

Full information and Pozzolith booklet sent upon request.





* Pozzolith — the cement-dispersing, water-reducing agent which makes available the optimum amount of air in concrete. Developed by The Master Builders Co. in 1933. Contains calcium lignosulfonate as the basic ingredient. Added to concrete mix at mixer.

Over 600 Leading Ready-Mixed Plants
Are Producing Pozzolith Ready-Mixed Concrete

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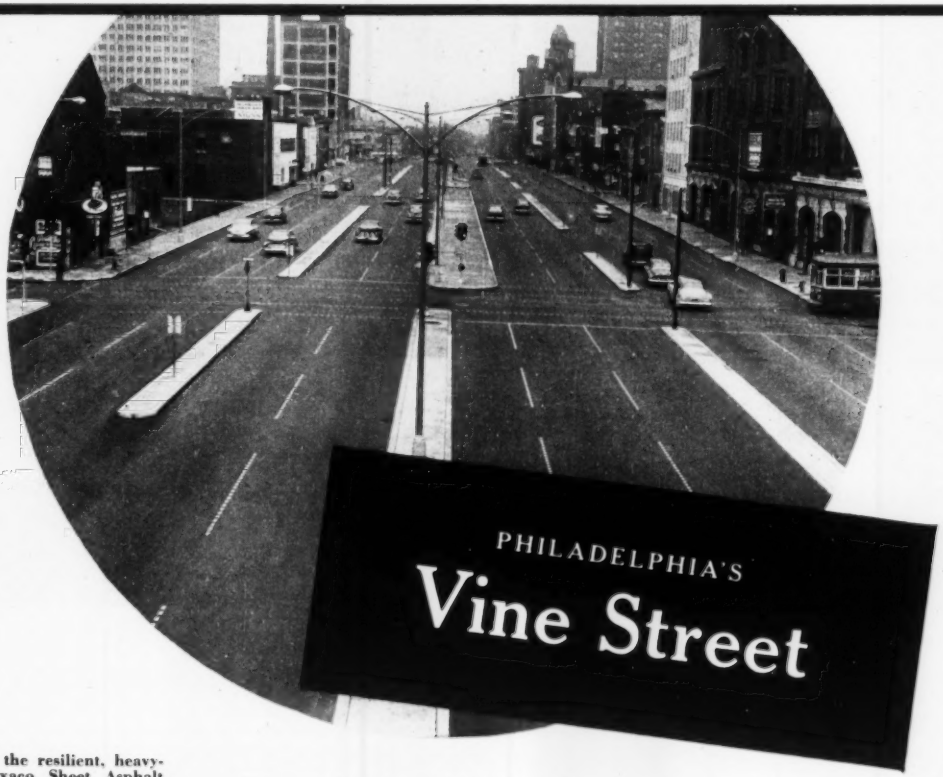
CLEVELAND 3, OHIO — Subsidiary of American-Marietta Company — TORONTO, ONTARIO

Another major U. S. thoroughfare *is paved with* Texaco Asphalt



View of the resilient, heavy-duty Texaco Sheet Asphalt pavement constructed on Vine Street by the Union Paving Company of Philadelphia.

Faithfully yours
50
for Fifty Years

This multi-lane thoroughfare is one of the principal traffic arteries of the country's third largest city. Chief reason for its importance is that it serves traffic bound to and from the Delaware River Bridge, which links Philadelphia with Camden, N. J. More than 250,000 vehicles crossed this bridge during a three-day weekend.

The pavement which serves Vine Street traffic is resilient, heavy-duty Sheet Asphalt. Texaco Asphalt was used in the Vine Street pavement—also in the Asphaltic Concrete and Sheet Asphalt paving on the Delaware River Bridge itself.

In Philadelphia and 1500 other representative U. S. communities, Texaco Asphalt paving has demonstrated over and over again its rugged durability and low upkeep cost.

For helpful information on the various types of Asphalt construction suitable for streets, highways and airports, write our nearest office for copies of two booklets on the subject, which will be sent without cost or obligation.

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